EFFECTIVENESS OF SAVASANA ON REDUCTION OF BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSIONIN SELECTED VILLAGES AT VIRUDHUNAGAR.

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2014

EFFECTIVENESS OF SAVASANA ON REDUCTION OF BLOOD PRESSURE AMONGPATIENTS WITH HYPERTENSION IN SELECTED VILLAGES ATVIRUDHUNAGAR.

BY

Mrs. GOMATHI.B

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SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Affiliated To Tamil Nadu Dr. M.G.R. Medical University,

K.R.Naidu Nagar, Sankarankovil, Tirunelveli District-627 753,

Tamil Nadu

CERTIFICATE

This is bonafide work of**Mrs.GOMATHI.B. M.Sc(N),(2012 – 2014 batch)** second year student of Sri. K. Ramachandran Naidu College of Nursing, Sankarankovil, Pincode -(627 753) Submitted in partial fulfillment for the **Degree of Master of Science in Nursing,** under The Tamil Nadu Dr.M.G.R. Medical University, Chennai.

SIGNATURE _____

Prof. (Mrs). N. SARASWATHI, M.Sc (N),Ph.D (N);
Principal, Head of the Department inPaediatric Nursing,
Sri. K. Ramachandran Naidu College of Nursing,
Sankarankovil, Tirunelveli-627 753,
Tamil Nadu

COLLEGE SEAL

A STUDY TO ASSESS THE EFFECTIVENESS OF SAVASANA ON REDUCTION OF BLOOD PRESSUREAMONG PATIENTS WITH HYPERTENSIONIN SELECTED VILLAGES AT VIRUDHUNAGAR

APPROVED BY THE DISSERTATION COMMITTEE ON _____

PROFESSOR IN NURSING RESEARCH

Prof. (Mrs). N. SARASWATHI, M.Sc. (N), Ph.D (N);_____
Principal,Head of the Department in Paediatric Nursing,
Sri.K.Ramachandran Naidu College of Nursing,
Sankarankovil, Tirunelveli-627 753,
Tamil Nadu

CLINICAL SPECIALITY COGUIDE

Mrs.V. JAYA, M.Sc. (N); _____
Lecturer, Department of Medical Surgical Nursing,
Sri.K.Ramachandran Naidu College of Nursing,
Sankarankovil, Tirunelveli-627 753,
Tamil Nadu

MEDICAL GUIDE

Dr. M. PARI, MD.,(GERI MED); _____
Rajapalayam,
Virudhunagar -627 001,
Tamil Nadu

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ACKNOWLEDGEMENT

I wish to express my deepest gratitude and warmest appreciation to the following people, who, in any way have contributed and inspired me to the overall success of the undertaking. Therewere much guidance and support, assisting hands in this journey, which made it yield. I am fortunate to have found an abundance of all requisites at every step.With immense gratitude,it is a pleasure to thank those who made this thesis possible.

I thank **AlmightyGod**with reverence and sincerity for the abundant blessings, guidance, wisdom, courage and strength throughout this endeavor.

At the outset, I am the researcher of this study express my heartful gratitude to **Mr.R.Vivekanandhan,** Chairman and **Mrs.G.PremShantha,** managing trustee of Sri. K. Ramachandran Naidu College of Nursing for the precious opportunity of being a part of this esteemed institution.

I owe my profound gratitude and sincere thanks to **Prof.(Mrs).N.Saraswathi,** M.Sc.(N), Ph.D(N); Principal, Head of the Department in Paediatric Nursing,Sri.K.Ramachandran Naidu College of Nursing, for her constant supervision, patience, endurance, valuable suggestions, guidance and helped me in completion of my study successfully.

Iam indeed gratitude to my Research Co Guide **Mrs.V.Jaya,**M.Sc.(N);Lecturer in medical surgical nursing for her expert guidance, suggestions and enlightened ideas in giving shape to the study.

I extend mythanks to **Mrs.J.Sathya,** M.Sc. (N); Lecturerinmedicalsurgical nursing, whose encouragement, guidance and support in early phase of my study.

I am indeed greatly indebted to **Mrs. P.Subbalakshmi,** M.Sc. (N);Associate professor, Class coordinator for her constant supervision and valuable suggestions in completing the study.

My sincere thanks to**Dr.M.Pari,** MD;(GERIATRIC MEDICINE)for his expert guidance, suggestions and support in giving shape to the study.

My sincere thanks toMedical officer of primary health centre, **zameenkollankondan**for granting me the permission to conduct the study.

I extend my sincere thanks to all the **Medical and Nursing Experts** who have given their enlightened ideas in giving shape to the study in its early stage.

I also thank all the **respondents** for their active involvement, trust, co operation & support which they extended in completing the endeavor. Without their support and co operation this dissertation completion would not have been possible.

I acknowledge my genuine gratitude to **Mrs. Amirthavalli,**Statistician for her suggestions, guidance in data analysis and in presentation of data.

I extend my sincere thanks to **Mr.A.Palanisamy,**M.A, B. Ed; teacher, for his patience and expertise in editing the content in English.

I am thankful to the **librarians** of Sri. K.Ramachandran Naidu college of Nursing and the Tamil Nadu Dr. M. G. R. Medical University for their cooperation in collecting the related literature for the study.

It is my proud privileges to express my profound sense of deep gratitude and thanks to my family and friends**.** The words are inadequate to express the affection, inspiration and devotion shown by my father**Mr. C.Bangarusamy,**my mother **Mrs.B. Vijayalakshmi,**My dear brother**Mr. B. Radhakrishnan**andmy dear sister**Mrs. A. Sathyabama**for their measureless love, unending words of encouragement and constant support throughout this study. This study would not have been possible without the co-operation and constant support of my family members, Co guide and friends for their prayer and motivation.

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ABSTRACT

The Research Project, **"A Study to assess the effectiveness of savasana on reduction of blood pressure among patients with hypertensioninselected villagesat Virudhunagar".**It was conducted in partial fulfillment of the requirement for the Degree of Master of science in nursing atSri K.Ramachandran Naidu College of Nursing which was affiliated to the Tamil NaduDr. M.G.R Medical University, Chennai during the year 2013-2014.

The Objectives of the study were:

- To assess the pretest and posttest level of blood pressureamongpatients with hypertensionin experimental and control group.
- To find out the effectiveness of savasana on reduction of blood pressureamong patients with hypertension in experimental group.
- To compare the pretest and posttest level of blood pressureamong patients with hypertension in experimental group.
- To associate the posttest level of blood pressure among patients with hypertension in experimental and control groupwith their selected demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

All Hypotheses were tested at 0.05 level of significance

H1: The mean posttest level of blood pressure among patients with hypertension in experimental group will be significantly lower than the mean posttest level of blood pressure in control group.

H2: The mean posttest level of blood pressure among patients with hypertension in experimental group will be significantly lower than their mean pretest level of blood pressure.

H3: There will be a significant association between the posttest level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables such as age, sex, education, occupation, monthlyincome, family history of hypertension, bad habits and dietary habits.

The framework of the study was based on the Daniel.L.Stuffle beams context, input, process and product evaluation model helping art of clinical nursing theory

Totally sixty patients were selected from the two villages. Thirtypatients were selected to experimental group and thirty patients were selected to control group. The samples were selected based on the criteria for sample collection. According topurposive sampling technique the patients were selected to the experimental group and control group. The experimental group received twenty minutes savasana, one timeperdayfor one week.An evaluation was carried out for the experimental group and control group by using sphygmomanometer and stethoscope.

The Research design was Quasi experimental – Pretest and Posttest control group design.

The setting of the study was Desigapuramvillage and Zameenkollankondan village at Virudhunagar.It was situated about 10kmand 15kmfromSri.K.Ramachandran Naidu Collegeof Nursingat Tirunelveli.

The descriptive and inferential statistics were used to analyze the data.

The significant Findings of the study were

On analysis of frequency and percentage of demographic variables, majority of the patients 12 (40%) were between the age group of 41-50 and 51-60 years among patients with hypertension in experimental group, whereas in the control group 14(46.67%) of subjects were between the age group of 51-60 years. With regard to sex classification, majority of patients 20 (66.67%) were female in the experimental group, whereas in the control group 17 (56.67%) of subjects were female.

With respect to education, majority of the patients 15 (50%) had no formal education in the experimental group, whereas in the control group 17 (56.67%) of subjects had no formal education. With regard to occupation, majority of patients 22 (73.33%) were belongs to coolie in the experimental group, whereas in the control group 22 (73.33%) of subjects were belongs to coolie.

With regard to monthly income, majority of patients 20(66.66%) of them were belongs to <3000, in the experimental group, whereas in the control group 15 (50%) of subjects were belongs to <3000. Regarding the family history of hypertension, majority of patients 23 (76.67%) was in the experimental group and 24 (80%) in the control group did not have family history of hypertension.

Regarding the bad habits, majority of patients 22 (73.33%) of them were do not have any bad habits in the experimental group. whereas in the control group, majority of patients 16 (53.33%) of them were did not have bad habits. With regard to dietary habits, majority of patients 25 (83.33%) were non-vegetarian in the experimental group, whereas in the control group majority of patients, 29 (96.67%) were non-vegetarian.

There was a significant difference between the mean score in the experimental group before and after the administration of savasanaamong the patients with hypertension. Justification undertaken for this study was to administersavasana for reduction of blood pressure and to determine its effectiveness, so that savasanacan be used in future for all the patients with hypertension for health promotion.

On analysis of mean score of blood pressure after intervention among experimental groupwas 0.16 and in control group was 1.16. Standard deviation of blood pressure after intervention among experimental group was 0.36 and in control group was 0.39 and calculated‘t’ value was 15.625.It shows reduction of blood pressure in experimental group.

There was nosignificant association between the posttest level of blood pressurein the experimental group with their demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension,bad habits and dietary habits. Obtained chi square value was significantat 0.05 level.

Based on the findings of the study, it is recommended that,

Based on the findings of the present study the following recommendations were made:

1. Similar study can be conducted with large samples for better generalisation.
2. The study can be conducted to assess the knowledge and practice of nurses with regard to savasanafor control of blood pressure in patients with hypertension.
3. A comparative study can be conducted by using savasanaversus back massage on reduction of blood pressure among patients with hypertension.
4. The same study can be repeated by using the true experimental design.
5. The same study can be conducted in the hospital setting.

As a nurse working in hospital has a vital role to provide effective nursing care for the patients. The nurses are need to develop their knowledge and skills in management of hypertension by accurately measuring the blood pressure,providing care to the patients with hypertensionand to use wide variety of interventions in order to control hypertension in such patients.

CONCLUSION

The key conclusion that there was a significant reduction on the level ofBlood pressure among patients with hypertension who received savasana.It was easy to administer and potentially risk free intervention. Thus an administration of savasana was effective to control the blood pressure among patients with hypertension.

CHAPTER I

INTRODUCTION

"Yoga is the art of living; it is the way of healing."

--Rashidajivani

BACKGROUND OF THE STUDY

In the modern world each and every individual's life has become stressful. This stressful life is directly affecting a common Person. A common man is suffering from various psycho physiological disorders. In this busy life schedule man is not having the time to relax. As the world is moving cardiovascular diseases have became one of the leading cause of mortality and morbidity.

Hypertension is one of the major risk factor for stroke, myocardial infarction, vascular disease and chronic kidney disease.**(Framingham heart study, 2004)**

Hypertension is defined as a systolic blood pressure (SBP) of 140 mmHg or more, or a diastolic blood pressure (DBP) of 90 mmHg or more. **(Joseph cherian, 2010)**

The prevalence of chronic disease is showing an upward trend in most countries. In particular of hypertension in India is 59.9 and 69.9/1000 in males and females respectively. "As blood pressure goes up, life expectancy goes down". **(WHO, 2003)**

International hypertension guidelines have created categories. Classification of Blood Pressure for adults aged 18 years or older is as follows: Normal: Systolic lower than 120 mm Hg, diastolic lower than 80 mm Hg, Prehypertension: Systolic 120-139

mmHg, diastolic 80-89 mm Hg, Stage 1hypertension: Systolic 140-159 mmHg, diastolic 90-99 mmHg, Stage 2 hypertension: Systolic 160 mmHg or greater, diastolic 100 mmHg or greater. **(JNC, 2003)**

Hypertension may be primary, which may develop as a result of environmental or genetic causes, or secondary which has multiple etiologies including renal, vascular, and endocrine causes. Primary or essential hypertension accounts for 90-95% of adult cases, and secondary hypertension accounts for 2-10% of cases**. (Vasan, 2006)**

Ninetyfive hypertensive patients in community are essential, idiopathic etiology and only small percentages have an identifiable cause. Epidemiological evidence shows that there are several factors which play an important role in the development, evolution and prognosis of hypertension. Some of them are non modifiable factors such as age, sex, ethnicity and heredity and modifiable factors are body weight, salt intake, use of hormonal contraceptive drugs, sedentary life, stress, cigarette smoking and alcoholism.**(Warrel, 2008)**

In most people with established essential (primary) hypertension, increased resistance to blood flow (total peripheral resistance) accounting for the high pressure while cardiac output remains normal. There is evidence that some younger people withprehypertension or 'borderline hypertension' have high cardiac output, an elevated heart rate and normal peripheral resistance. These individuals develop the typical features of established essential hypertension in later life as their cardiac output falls and peripheral resistance rises with age. The increased peripheral resistance in established hypertension is mainly attributable to structural narrowing of small

arteries and arterioles, although a reduction in the number or density of capillaries may also contribute.**(Anderson 2004)**

Hypertension is rarely accompanied by any symptoms. A proportion of people with high blood pressure report headaches particularly at the back of the head and in the morning, as well as light headedness, vertigo, tinnitus, altered vision or fainting episodes. **(Myclitun, 2004)**

The evaluation of hypertension involves accurately measuring the patient's blood pressure, performing a focused medical history and physical examination and obtaining results of routine laboratory studies.A 12-lead electrocardiogram should also be obtained. Other studies may be obtained on the basis of clinical findings or in individuals with suspected secondary hypertension and evidence of target-organ disease such as CBC, chest radiograph, uric acid, and urine micro albumin.**(Hildrum, 2005)**

The United States guidelines supports the drugs like low dose thiazide-based diuretic, calcium channel blockers, angiotensin converting enzyme inhibitors, beta-blockers and alpha-blockers.**(Luckman, 2005)**

Hypertensive individuals require health promoting lifestyle modifications to prevent progressive risk in blood pressure and cardiovascular disease. Weight loss (range of approximate systolic BP reduction [SBP], 5-20 mm Hg per 10 kg),Limit alcohol intake to no more than 1 oz or30 ml of ethanol per day for men or 0.5 oz or15 ml of ethanol per day for women. Reduce sodium intake to no more than 100 mmol/day, Maintain adequate intake of dietary potassium (approximately 90 mmol/day),for general healthStop smoking and reduce intake of dietary saturated fat

and cholesterol for overall cardiovascular health**,** Engage in aerobic exercise at least 30 minutes daily for most days (range of approximate SBP reduction, 4-9 mm Hg). **(JNC, 2004)**

There is growing evidence that non pharmacological interventions lower blood pressure. These interventions are not costly and are generally beneficial in promoting health. They also help in decreasing the cardiovascular risk factors at little cost and with minimal risk they are progressive relaxation, effective goal setting, meditation, exercise, deep breathing and yoga to control blood pressure.**(Panwar, 2007)**

Many literatures reveal that yoga exercise helps in reducing blood pressure in hypertensive patients. Yoga promises a useful new approach to treatment of hypertension. Systematic teaching of yoga exert a positive influence on a patient with hypertension reduces blood pressure.

Savasana improves memory power, keeps emotions under control, increases concentration in work, decreases depression and anxiety, helps in withstanding stress and strain refreshes feeling all though the day, increases will power, alertness power of thinking and creativity, increases productivity gives a feeling of health and harmony, pays way for success in life, helps in cultivation of correct mental attitude, delays aging process, helps in getting rid of bad habits, teaches to accept life as it is adjust to surroundings and ensures long life with positive attitude. **(Ramesh, 2006)**

Savasana is the principal asana in category. Savasana relaxes the body because the muscles are completely relaxed voluntarily. It also relaxes the mind through deep and conscious breathing and autosuggestion. Savasana is an extremely useful asana, especially for busy people under stress. **(Ramesh bijlani, 2008)**

NEED FOR THE STUDY:

Hypertension is very common indeed and hence a major public health issue. The estimated number of adults living with high blood pressure globally was 972 million. This is expected to increase to 1.56 billion by 2025.**(Duluth, 2003)**

Hypertension was common in both developed (333 million) and undeveloped (639 million) countries.In Europe hypertension occurs in about 30-45% of people.**(Soreson, 2010)**

Hypertension is a worldwide epidemic. The prevalence of hypertension in the United States is increasing and reached 34% in 2006and African American adults have among the highest rates of hypertension in the world at 44%.Hypertension is more prevalent in men (though menopause tends to decrease this difference) and in those of low socioeconomic status. **(Ferroini, 2007)**

In India, hypertension has increased by 30 times in urban populations over 25 years and by 10 times in rural populations over 36 years. **(World health day, 2013)**

Hypertension was directly responsible for 7.5 million deaths in 2004 — 12.8 per cent of the total global deaths.The prevalence of hypertension in the age-group 20 to 59 was 27.50 per cent. Of these, 53.30 per cent were aware of their diagnosis; 42.80 per cent were taking treatment and only 10.50 per cent had controlled BP.**(Shimona, 2013)**

Pooling of epidemiological studies shows 31.5 million hypertensives in rural and 34 million in urban populations. A total of 70% of these were Stage I hypertension (systolic BP 140-159 mmHg and diastolic BP 90-99 mmHg). Recent

reports shows that Stage I hypertension carry a significant cardiovascular risk and there is a need to reduce this blood pressure.**(Gupta, 2004)**

A very high percentage of Indians are in a pre-hypertension stage. Mizoram had 58.5 per cent people in pre-hypertension stage though the actual population suffering from high blood pressure was only 19 per cent. This was followed by Uttarakhand with 48.8 per cent, Kerala (48.1 per cent) and Maharashtra (46.2 per cent). Madhya Pradesh, Tamilnadu and Andhra Pradesh are among the other States that have over 40 per cent of the population in the pre-hypertension category.**(Integrated Disease Surveillance Survey, 2008)**

In Tamilnadu recently the high prevalence of hypertension is in rural areas. The study reported 21.4 per cent hypertension prevalence in about 10,500 people aged between 25 to 64 in 11 villages in the State with both sexes being affected equally. It was published in the International Journal of Public Health. **(Dr. PrabhdeepKaur, 2012)**

In Tamilnadu8, 57,616 people in the 16 districts who came to healthcare facilities for other ailments were screened between July to September 2012 alone. 60,517 of these were found to have hypertension. **(Jerard, 2013)**

In Tamilnadu, pilot studywas conducted in Sivaganga and Virudhunagar districts during 2007-2010 to screen and treat people for hypertension during which about 11,31,000 people were screened for hypertension in 98 health facilities.The median age at occurrence of hypertension was 54 years (range, 41-70).**(Vasudevan, 2012)**

Yoga is a spiritual science gifted to us by our great ancestors, has the capacity on both preventive and curative levels. Hence besides regulated and balancedregimen and stress free life. Yoga also contributes to the control of blood pressure. **(Rajesh, 2004)**

Blood pressure increased by sustained activities of flight and fight response of the body. Yoga effectively switches off the response and brings adrenaline level down, thus reducing blood pressure. **(Sujit, 2002)**

Yoga is a practice of controlling the mind and body is an ancient that begin in India over thousands of years ago. Because it involves breathe control, meditation and physical postures. It is supposed to increase the vitality of the human body help with concentration, calm the mind and improve common physical ailments. **(Lamb, 2004)**

One in every 10 Indian suffers from high blood pressure. Antihypertensive drugs have side effects and are expensive. Non compliance to medication is very common among hypertensive patients due to various reasons. Antihypertensive drugs alone cannot control blood pressure. Physiological relaxation is very important for maintaining blood pressure. **(Indian express bureau, 2004)**

Savasana therapy relaxes the body and facilitates normal blood circulation without obstruction and it is one of the important technique to control blood pressure.

Based on the review of literature, prevalence and incidence of hypertension is existingin various regions and the investigatorpractice in the field of community; felt that savasanamay be beneficial to the patients with hypertension. It is a simple procedure to carry out in day to day life and potentially risk free procedure, so the investigator had selected this study and proved by evidence based approach.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Savasana on reduction of blood pressure among patients with hypertension in selected villages at Virudhunagar.

OBJECTIVES OF THE STUDY

- To assess the pretest and posttest level of blood pressure among patients with hypertension in experimental and control group.
- To find out the effectiveness of Savasana on the reduction of blood pressure among patients with hypertension in experimental group.
- To compare the pretest and posttest level of blood pressure among patients with hypertension in experimental group.
- To associate the posttest level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables such as age, sex, education, occupation, income, family history of hypertension, bad habits and dietary habits.

HYPOTHESES:

H1: The mean posttest level of blood pressure among patients with hypertension in experimental group will be significantly lower than the mean posttest level of blood pressure in control group.

H2: The mean posttest level of blood pressure among patients with hypertension in experimental group will be significantly lower than their mean pretest level of blood pressure.

H3: There will be a significant association between the posttestlevel of blood

pressure among patients with hypertension in experimental and control group with their selected demographic variables such as age, sex, education,occupation, monthly income, family history of hypertension, bad habits and dietary habits.

OPERATIONAL DEFINITION

Assess:

It refers to systematically and continuously collecting, validating and communicating the patient data regarding reduction of blood pressure among patients with hypertension. It is assessed by stethoscope and sphygmomanometer.

Effectiveness:

It refers to an outcome of Savasana on reduction of blood pressure among patients with hypertension.

Savasana:

It refers tolying on back with arms and legs at 45 degree angle, inhaling deeply, tensing the entire body(Clench jaw, purse lips, flex leg and arm muscles, tighten buttocks, curl toes, tighten abdomen, wrinkle forehead, tense ears, blow air into cheeks and clench fists), exhaling and relaxing the entire body from head to toe,breathing normally and keeping mind blank for about twenty minutes/day for one week at morning before breakfast.

Blood pressure:

It refers to prehypertension (systolic Blood pressure from 121-139 mmHg and diastolic Blood pressure from 81-89 mmHg) and stage 1 hypertension (systolic Blood pressure from 140-159 mmHg and diastolic Blood pressure from 90-99 mmHg) based on the classification of national institutes of health.

Hypertensive patients:

It refers to patients of both male and female who was diagnosed as hypertension and between the age group of 41-70 years.

ASSUMPTIONS

- Sample above 41 years may prone to get hypertension.
- Savasana may reduce blood pressure.
- Savasana may reduce physical and emotional tension and produce whole body relaxation.
- Savasana has no harm.

DELIMITATIONS

- The study is delimited to selected villages.
- The study is delimited to a period of four weeks.
- The study is delimited between the age group of 41-70 years
- The study is delimited to a sample of 60 hypertensive patients.

PROJECTED OUTCOME

The findings of the studywill help the nursesand to plan and use savasana in reducing blood pressure among patients with hypertension.

The findings of the study will help the nursesand to plan the educational programme on hypertension.

CONCEPTUAL FRAMEWORK

The conceptual framework is a set of interrelated concepts that are assemble together in some rational scheme, in virtue of their relevance to a common theme. Conceptual framework helps to stimulate research and extensive knowledge. **(Polit, 1990)**

The conceptual framework for research study presents the measure on which the purpose of study is based. The framework provides the perspective from which the investigator views the problems. The study is based on the concept that the effectiveness of savasana on reduction of blood pressure among patients with hypertension. The investigator adopted the Daniel L. Stufflebeam's model as a base for developing conceptual framework.

Daniel L. Stufflebeam which included context evaluation, input evaluation, process evaluation and product evaluation. Context evaluation helps to prioritize goals, input evaluation to assess different approaches. Process evaluations assess formative and summative assignments. The CIPP model advocates that `the purpose is not to prove, but to improve'.

Daniel L. Stuffle beam model illustrate on 4 evaluations.

- Context evaluation
- Input evaluation
- Process evaluation
- Product evaluation

CONTEXT EVALUATION:

It assess the needs, problems, assets and opportunities to help decision makers define goal and priorities to help the group of users to judge goals, prioritize and outcome. The present study is carried out to determine the effectiveness of savasana to reduce blood pressure among patients with hypertension.

INPUT EVALUATION:

It assess alternative approaches completing action plans, specific resources and strategies to meet target needs and achieving goals. Decision makers use inputevaluation in choosing among competing plans, allocating resources and scheduling work. In this study input evaluation refers to

- Pre assessment of the level of blood pressure using sphygmomanometer and stethoscope.
- Administration of savasana.

PROCESS EVALUATION:

To assess implementation and interpret outcomes. In this present study process evaluation refers to the assessment of the blood pressure after administration of savasana.

PRODUCT EVALUATION:

It helps to identify and assess the outcome intended short term and long term both help the investigator to focus on achieving the important outcomes and ultimately to help the broader group of success in meeting the target needs.

In the present study product evaluation refers to the comparison ofpretest and posttest level of blood pressure among patients with hypertension. Improvement in the level of blood pressure was monitored and tabulated by statistical computation. Product evaluation further leads to recycling decisions. In this study the inadequate control of blood pressure among patients with hypertension needs attention to promote adequate control of blood pressure which is not included and denoted by line.

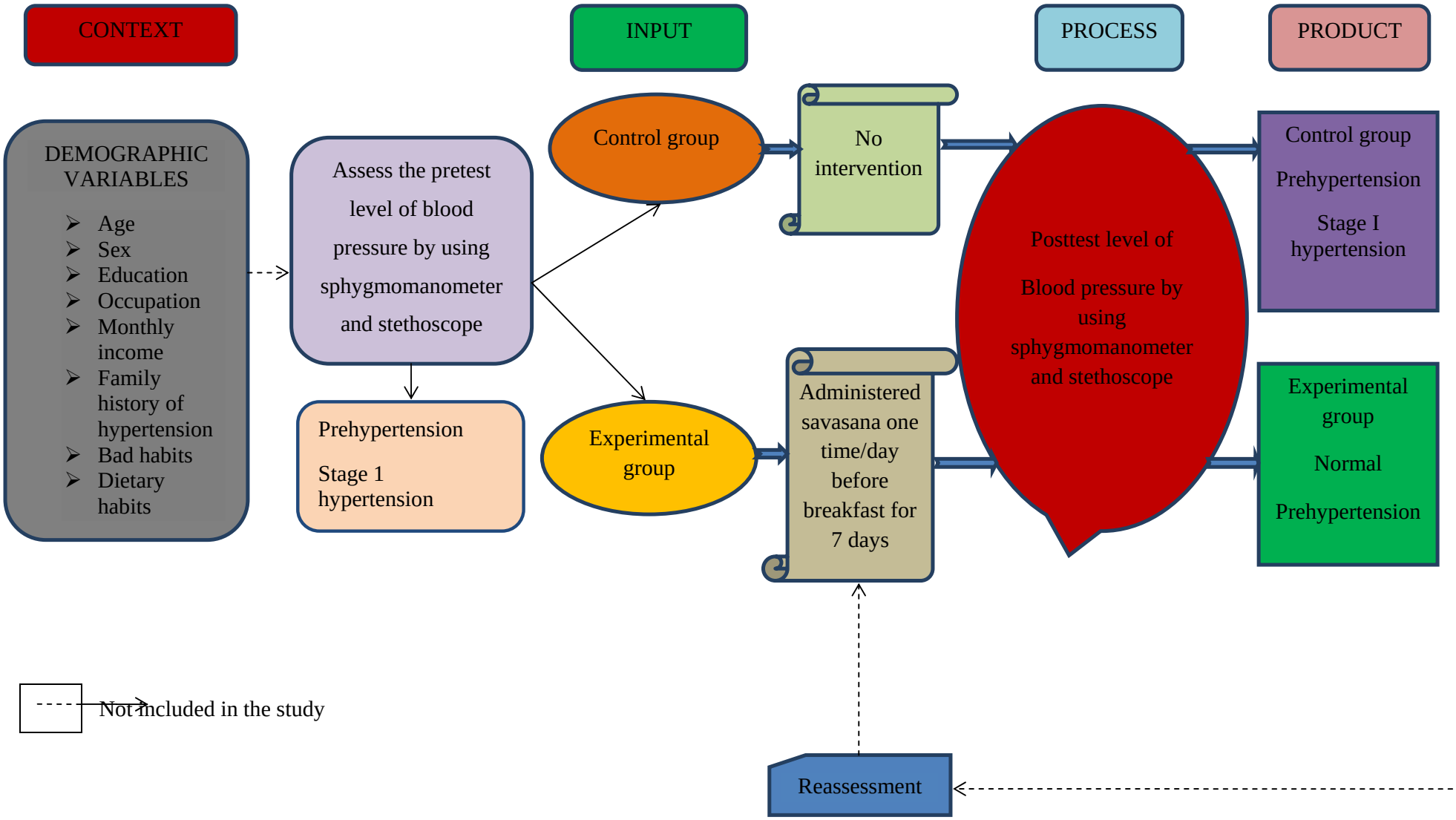

FIGURE 1: Daniel.L.Stuffle beams context, input, process and product evaluation model (CIPP)

CHAPTER II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest (**Polit& Beck, 2006**).

The review of literature in the research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practices or to provide a basis for conducting a study **(Burns, 1997)**.

The review of literature is organized under the following sections.

Section A: Studies related to prevalence and risk factors of hypertension.

Section B: Studies related to the effect of savasana on hypertension.

SECTION A: STUDIES RELATED TO PREVALENCE AND RISK FACTORS OF HYPERTENSION

Godwin et al.,(2013)conducted a descriptive cross-sectional study was carried out among hypertensive patients attending clinics at the Cardiology Unit, Colombo to study the prevalence and define differential risk factors for hypertension in a hypertensive of South Asian origin. All the patients with hypertension who provided informed written consent were recruited to the study (n = 277)**.** Mean age was 61□±□10.3 years and 50.2% were males. The mean of average systolic and diastolic blood pressures (BP) were 133.04□±□12.91 mmHg and 81.07□±□6.41 mmHg respectively. Uncontrolled BP was present in 41.1% (n = 114) of patients. Those with

diabetes mellitus, obesity (BMI > 27.5 kg/m^2) and those who were older than 55 years were significantly higher in the RHT group.A significant proportion of the hypertensive patients were having uncontrolled hypertensionwhich was significantly associated with the presence of obesity and diabetes mellitus.

Laurencia, (2013)dida study on prevalence and Risk Factors for Hypertension in Adansi South, Ghana.Hypertension continues to emerge globally as one of the most dangerous cardiovascular disease risk factors.This article presents the results of a cross-section analysis of Adansi South residents (N = 539) 5 years and older to investigate the blood pressure status and select hypertension risk factors across all age groups. Approximately a third of Adansi South respondents (27.1%) were identified as hypertensive. While the largest percent of the hypertensive subset was in the 40 to 59 age group, of concern was the emerging pattern among young and adolescent respondents who were either identified as hypertensive and having modifiable risk factors for hypertension like elevated body mass index (BMI).

Kotani et al., (2013)conducted a study to evaluate the impact of a number of demographic, biological, behavioural and lifestyle health risk factors on the incidence of hypertension in Thailand over a 4-year period.A prospective study of health risk factors and their effects on the incidence of hypertension.The overall 4-year incidence of hypertension was 3.5%, with the rate in men being remarkably higher than that in women (5.2%).In both men and women, hypertension was strongly associated with age, obesity and comorbidities while it had no association with socioeconomic factors. The cohort patterns of socioeconomy and hypertension reflect that the health risk transition in Thais is likely to be at the middle stage. Diet and lifestyle factors

associate with incidence of hypertension in Thais and may be amenable targets for hypertension control programmes.

Padwal et al., (2012)conducted a large cross-sectional study on prevalence of hypertension in United States. Hispanic ethnicity (18.9%) compared to either non-Hispanic white (27.7%) or non-Hispanic black (35.5%) was associated with the lowest prevalence of hypertension. Race/ethnicity was a single independent predictor of hypertension, with non-Hispanic black more likely to be hypertensive compare with Hispanic.Racial/ethnic disparities in hypertension persisted after controlling for potential predictors of hypertension in NHIS, implying the inability of known hypertension risk factors to account for racial/ethnic variability in hypertension in US.

Sinha, (2011)conducted a cross sectional study to estimate the prevalence of hypertension and to explore the risk factors associated with hypertensionin adults living in Central Development Region of Nepal.The participants underwent anthropometric measurement and blood pressure and answered a pretested questionnaire. Overall prevalence of hypertension was 22.4% (males: 32.7% and female: 15.3%). Bivariate analysis showed significant relationship of hypertension with gender, age, literacy, physical inactivity, body mass index (BMI), smoking and alcohol consumption. Therefore, intervention measures are warranted emphasizing onmodifiable risk factors such as smoking, alcohol consumption, physical activity and obesity to prevent hypertension.

Lorenzo et al., (2011) conducted a study to examine the mortality risk among 3632, 97% participants in the sanantanio heart study to evaluate the impact of blood pressure on relationship between prehypertension and mortality risks not known in individuals who are free of diabetes mellitus and cardiovascular disease. The results

were prehypertension prevalence was 31.6% at baseline. There were 218 deaths during the follow up period. Conclusion says that prehypertension increases mortality risk (all causes and cardiovascular) in individual who are free of diabetes mellitus and cardiovascular disease.

Peter songolo et al., (2011) conducted a study on prevalence of hypertension in Zambia in which total of 1928 individuals participated in the survey, of which 33.0% were males. About a third of the respondents had attained secondary level education (35.8%), and 20.6% of males and 48.6% of females were overweight or obese. The prevalence for hypertension was 34.8% (38.0% of males and 33.3% of females). In multivariate analysis, factors independently associated with hypertension were: age, sex, body mass index, alcohol consumption, sedentary lifestyle, and fasting blood glucose level.

Adnan et al., (2010) conductedan analytical prospective study that aims to determine prevalence of arterial hypertension in a population from Clujcounty. Study included 2266 patients;each subject was submitted to an interview based on a questionnaire. Diagnosis of arterial hypertension was established according to ESH criteria. Arterial hypertension represents an important health problem in Romania due to an increased prevalence, major impact on morbidity and mortality by cardiovascular and cerebro-vascular disease. These facts accentuate the necessity of an early diagnosis, of making people aware of the severity of the disease and it's impact on their lifestyle.

Reddy et al., (2010) conducted a cross sectional study in tirupathi town to study the prevalence of hypertension and it's risk factors as well as it's extent of diagnosis and management among adults aged 40-60 years. This review summarizes

that overall hypertension. Prevalence rate was 8.6% among 1000 adults. 83.7% were aware of their hypertension, all of those treated only 41.7% had satisfactory control of their hypertension. Higher prevalence was found with the history of cerebrovascular accident, cardiovascular accident 50%, alcohol intake 20%, diabetes mellitus 33.3%, family history of hypertension 23.3%, smoking 22.4%, age more than 50 years 22.2%, lack of physical exercise 15.8%, BMI above 25 14.9%.

Yuvrajet al., (2009)did a study on prevalence, awareness, treatment and control of hypertension in rural areas of davanagere was conducted. The results shows that prevalence rate of hypertension in the study population were 18.3% than in females 17.5%. 11.6%, 5.6% and 1.2% of total subjects had grade 1, 2 and 3 respectively. Only 33.8% of them were aware of their hypertension status. Hypertension of 32.1% was on treatment and 12.5% adequately controlled their blood pressure.

Nahla et al.,(2008)conducted a cross sectional study to investigate the prevalence and associated risk factors of hypertension and prehypertension among preparatory and secondary school teachers in Jeddah, KSA. A multistage stratified random sampling technique was used. The prevalence of HTN & prehypertension were 25.2 % & 43.0 %, respectively, among the sample of 1476 teachers.Predictors of prehypertension were male gender (aOR = 3.22, CI: 2.49, 4.16), age ≥ 40, and BMI ≥ 25.The prevalence of prehypertension and HTN was high among teachers in Jeddah & BMI was the strongest modifiable risk factor.

Das et al., (2008) conducted a study on prevalence of hypertensionin urban areas of India using the JNC VII criteria with the aim of identifying the risk factors and suggesting intervention strategies. A total of 1609 respondents out of 1602

individuals participated. Age and sex specific prevalence of hypertension showed progressive rise of systolic and diastolic hypertension in women when compared to men. Men showed progressive rise in systolic hypertension beyond fifth decade of life. Bivariate analysis showed significant relationship of hypertension with age, sedentary occupation, BMI, diet, ischemic heart disease and smoking. The observed prevalence of hypertension in this study and other studies suggest the need for a comprehensive national policy to control hypertension in India and in other similar developing countries.

Boston, (2006)conducted a study ontrends in prevalence, incidence, and control of hypertension in US. Prior to 1990, population data suggest that hypertension prevalence was decreasing; however, recent data suggest that it is again on the rise. Hypertension prevalence has also been increasing in other countries, and an estimated 972 million people in the world are suffering from this problem. Incidence rates of hypertension range between 3% and 18%, depending on the age, gender, ethnicity, and body size of the population studied. Despite advances in hypertension treatment, control rates continue to be suboptimal. Only about one third of all hypertensives are controlled in the United States. Programs that improve hypertension control rates and prevent hypertension are urgently needed.

Rabecca et al., (2005) had done a prospective study of body mass index and the risk of developing hypertension in fodor. They studied 13,563 initially healthy non hypertensive men who participated in physician's health study. They calculated BMI from self reported weight and height and defined hypertension as self reported systolic blood pressure ≥140mmHg, diastolic blood pressure ≥90mmHg/new antihypertensive medication use. After a median 14.5 years 4920 participants

developed hypertension. Higher baseline BMI, even in consistently associated with increased risk of hypertension compared to participants in lowest BMI quintile <22.4kg/m the relative risk of developing hypertension for men with a BMI 22.4-23.6, 23.7-24.7, 24.8-26.4kg/m were 1.20, 1.31, 1.56 and 1.85 respectively. Further adjustment for diabetes mellitus, high cholesterol and baseline blood pressure did not substantially after these results. They found a strong gradient between higher BMI and increased risk of hypertension even among men within the normal and mildly overweight BMI range. Approaches to decrease the risk of developing hypertension may induce prevention of overweight and obesity.

Vikas et al., (2004) conducted cross-sectional studies in puducherry showed that systolic blood pressure increases throughout life, whereas diastolic blood pressure increases until about age 50 years and then declines in men and women and in all racial groups resulting in a widening pulse pressure resulting in isolated systolic hypertension in older persons. By age 60 years, about two third of those with hypertension have isolated systolic hypertension. Now it is widely recognized that systolic blood pressure is equally important than diastolic blood pressure in determining cardiovascular and renal complications of hypertension.

Shapo.,(2003)conducted a cross sectionalstudy on prevalence of hypertension and other cardiovascular risk factors on the adult population of Tirana City (Albania).1120 adults aged 25 years and over (response rate=72.7%) were participated. Overall, hypertension prevalence (blood pressure =140 and/or 90 mm Hg, or known hypertensive receiving anti-hypertensive treatment) was 31.8% (36.6% and 27.4% in men and women respectively). Age standardized prevalence of hypertension (adjusted to the adult population of Tirana) was 30.2% (99% confidence

intervals 29.8% to 30.6%) in men and 22.7% (22.3% to 23.1%) in women. The prevalence of hypertension increased with increasing age and was more common in the obese in both sexes. Albania is in a state of rapid transition, with evidence that risk factors for non-communicable diseases have already increased considerably over the past two decades.

Kumar et al., (2003) conducted a study on prevalence of hypertension in the employees of a mega industry at south gujrat to find out the prevalence of hypertension and the impact of various risk factors on it and suggest the remedial measures. 1300 employees of industry were included in this study. Results revealed that the prevalence of hypertension. Hypertension was more in general shift workers and in certain sections (transport, finance, accounts, fire and security). Prevalence was also high in persons who were overweight. (Consuming alcohol and tobacco). Treatment, compliance amongst 204, aware patients was only 17%.

Toprak et al., (2003) conducted a study in Germany to assess hypertension patient's baseline health behavior their disease, life styles, behavioral modifications, sources of information about their disease and management of hypertension. The researcher administered questionnaire to 72 hypertensive patients. The patients mean BMI was 27±4kg/m, though diet restriction had been most common traditional self treatments found among hypertension patients were eating egg, yogurt with garlic 27.8% and eating sour foods 25%. From media a considerable proportion of patients gained their knowledge regarding hypertension. It was concluded that through media, client education and behavioral modification can be achieved and it will help in treatment and control of hypertension.

Sanjay et al., (2003) conducted a cross sectional study to describe the prevalence of hypertension and other cardiovascular risk factors on the adult population of china City (Albania). A total of 1120 adults aged 25 years and above were included in this study. Overall, hypertension prevalence was 31.8% (36.6% and 27.4% in men and women respectively). Age standardized prevalence of hypertension (adjusted to the adult population of china) was 30.2% (99% confidence intervals 29.8% to 30.6%) in men and 22.7% (22.3% to 23.1%) in women. Men were significantly more likely to be hypertensive than women (p value=0.001). The prevalence of hypertension increased with increasing age and was more common in the obese in both sexes.

Wamala, (2003)dida community-based cross-sectional study on prevalence factors associated with hypertension in rukungiri district, Uganda was done. A random sample of consenting district residents, aged 20 years or older was enrolled to participate in this study. The questionnaire collected data on demographics, social economic and exposure history to various potential risk factors for hypertension.Out of 842 study participants, 252 were hypertensive. The age-standardized prevalence of hypertension was 30.5%.The prevalence of hypertension in this rural Ugandan district is relatively high. The findings confirm the growing concern about hypertension as a public health problem in Uganda.

SECTION B: STUDIES RELATED TO THE EFFECT OF SAVASANA ON HYPERTENSION.

Dayanidhy et al., (2011) conducted a study to assess the effectiveness savasana and savitri pranayama on heart rate and hypertension at Pondicherry, 19 hypertension patients were selected and were taught and instructed to lie down in savasana and perform for 10 minutes. Heart rate and blood pressure were recorded before and immediately after intervention. There was a significant decrease in systolic blood pressure from 125.67±4.42 to 117±3.89mmHg and diastolic pressure decreased from 72.67±2.74 to 69.17±2.74mmHg.

Jayasettiseelan et al., (2009) conducted a study on immediate cardiovascular effects of savasana and pranava pranayama on heart rate and blood pressure of hypertensive patients. He selected 19 hypertension patients attending yoga therapy. Sessions at acyter and were taught savasana with pranava pranayama and instructed to perform the same for 15 minutes. Heart rate and blood pressure were measured with non invasive semi-automatic blood pressure monitor before and immediately after rate pressure product and double product were derived by formula. There was a highly significant ($p<0.001$) reduction in systolic pressure from 135.94±3.51 to 126.21±2.88 mmHg, pulse pressure from 57.26±3.02 to 50.15±2.35 mmHg, rate product from 106.45±5.36 to 97.35±4.91 units and double product from 121.41±63.17 to 110.21±56.35 units. Diastolic pressure reduced significantly ($p<0.01$) from

78.68±1.74 to 76.05±1.59 mmHg. There was statistically in significant reduction in heart rate from 78.05±2.91 to 76.78±2.89.

Datey et al., (2008) had done a comparative study at Goa to find out the effect of relaxation techniques, biofeedback training and savasana among patients with hypertension. 27 hypertension patients were taken for biofeedback training and 86 patients for savasana. The savasana group was divided into 3 groups. Experimental group 1 consists of 15 patients who were not on any antihypertension treatment but they received placebo tablets for one month before teaching them savasana. Experimental group II consists of clients who were on antihypertension treatment for 2 years and blood pressure was adequately controlled in them. Experimental group III consists of clients who were not on antihypertension drugs and had uncontrolled blood pressure. The intervention was given for 12 weeks. A fall of blood pressure was noted in all 3 groups. In group I the average mean blood pressure came down from 134 to 107 mmHg. In group II fall in blood pressure was from 102 to 100 mmHg but the drug requirement was reduced to 32% of the original in 27 clients 60%. In group III the average blood pressure dropped from 120-110 mmHg and the drug requirement was decreased to 29% of the original in 10 clients (38%).

Beulah et al., (2007) conducted a quasi-experimental study in coimbatore on the effect of savasana on blood pressure among hypertension patients. The study was conducted among 30 hypertension patients. The intervention was given once daily for 15-30 minutes for a period of one week. A significant reduction in the mean systolic blood pressure of experimental group. (pretest mean = 150.66) and (posttest mean = 132.06) and diastolic blood pressure (pretest mean = 96 and posttest mean = 87.33)

after the intervention. The mean pretest and posttest mean remained the same in control group.

Sundar et al., (2006) conducted a study to determine the effect of savasana on reduction of blood pressure in Delhi. In this non controlled study, 25 patients of essential hypertension were studied, of these 20 patients were not given any antihypertensive drug treatment (group a). Other 5 had to be put on antihypertensive drugs before including them in study (group b). These patients were demonstrated savasana and trained to perform it correctly. Savasana was continued for 6 months. There was a statistically fall in both mean systolic and diastolic pressure of both groups.

Broota (2005) conducted a study oncomparison of efficacy of 3 different relaxation techniques in reducing symptoms of hypertension. Results were showing that all the 3 relaxation therapies were quite effective in reducing the symptoms of hypertension as compared to control group. Savasana has been found to be the most effective technique. A sample of 40 patients were selected from the clinics of west delhi with their age varied from 35-39 years and these subjects were also under similar medication undergone 9 total of 8 sessions on 8 consecutive days were taken.

Tarumehta et al., (2004) did a study on savasana is the most basic and effective treatment of high blood pressure and the heart related diseases. Many patients get cured from major diseases using this technique on a regular basis within around 3-4 months. This yoga can be performed 2-3 times/day may be in the early evening or just before to sleeping. Severe blood pressure patients can be treated very efficiently with this yoga along with some selected pranayama technique like anulom-

vilom. The positive noticeable improvements can be identified just within 45 days of regularly practicing this pranayama.

Prasad et al., (2004)did a study on effect of savasana on blood pressure,had taken 44 subjects, 38 males and 6 females in the age of 20-69 years (average year 42 years) original systolic pressure from 140 to 180 mmHg and diastolic pressure from 140 to mmHg and diastolic pressure from, 90 to 180 mmHg. They were taught to perform savasana, twice a day for 30 minutes. The blood pressure was recorded before and after the practice. After three months of practice, the patients had a definite feeling of well being as they observed a marked impotent in headache, irritability, and also their average mean blood pressure reduced from 130 to 107 mmHg after the treatment.

Anandhabalayogi (2003) conducted a study to assess the effect of savasana on heart rate and blood pressure in Israel. In this study 43 normal healthy school children were selected and their recordings were taken after 5 minutes of supine rest. The subjects were randomly made to lie with their hands towards north, east, south and west for different days. Heart rate and blood pressure were recorded after 5 minutes of supine rest. The results showed that the heart rate was lowest in north and the highest in south. Systolic pressure was lowest in north and higher in west with a difference of 3-5mm Hg.

Zeena et al., (2002)conducted an experimental study on role of yoga in management of essential hypertension. Twenty five patients of essential hypertension were studied. Of these, 20 patients were not given any antihypertensive drug treatment (Group A); other 5 had to be put on antihypertensive drugs before including them in the study (Group B). These patients were demonstrated savasana and trained to perform it

correctly. Savasana therapy was continued for 1month. There was a statistically significant fall in both mean systolic and diastolic pressure of both groups. Further, there was a significant reduction in doses of antihypertensive drugs, being given to patients of group B. In 65% patients of group A, blood pressure could be controlled with Savasana only and no drug was needed in them at all. Blood pressure rose significantly to presavasana levels in patients who left practicing yoga. Thus, with use of savasana in therapy of hypertension, requirement of antihypertensive drugs may be significantly decreased and in some cases may be totally dispensed with and it may be an useful adjunct in treatment of hypertension.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the methodology to evaluate the effectiveness of savasana on level of Blood pressure among patients with hypertension.Research methodology refers to the techniques used to structure a study, to gather and analyze information in a systematic fashion (**Polit&Hungler, 2008**). Methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation.

This chapter provides a brief description of the method adopted for the study.It consists of research approach, research design, variables, setting of the study, population, sample, sample size, sampling technique, criteria for sample selection, development and description of tool, scoring procedure, intervention, content validity, reliability, pilot study, data collection procedure, plan for data analysis and protection of human rights.

RESEARCH APPROACH

Quantitative approach was adopted for this study. It refers to an inquiry into an identified problem, based on testing a theory composed of variables, measured with numbers and analysed using statistical techniques.

RESEARCH DESIGN

Research design used in this study was quasi experimental pretest and posttest control group design. It is diagrammatically represented as

GROUP	PRETEST	INTERVENTION	POSTTEST
Experimental group	O1	X	O2
Control group	O1	-	O2

Figure 2: Schematic Representation of Research Design.

KEY:

O1: Pretest level of blood pressure among experimental group and control group.

O2: Posttestlevel of blood pressure among experimental group and control group

X: Administration of savasana to the experimental group.

VARIABLES

Variables are characters that can have more than one value. The categories of variables discussed in the present study are, independent variable and dependent variable.

Independent variable: Savasana

Dependant variable: Blood pressure.

SETTING OF THE STUDY

The setting of the study refers to the area where the study was conducted. The study was conducted in Desigapuram villageand Zameenkollankondan village atVirudhunagar.

In that, Desigapuram village was selected as experimental group.The distance between the Desigapuramvillage and Sri. K. Ramachandran Naidu College of nursing was 10 km. The total population of the Desigapuram village was 3256. The total family living in this village was 523. In that, 1642 were males and 1614 were females. Aged between 41-70 years was 1205. The subcentrewas providing the basic medical care facilitiessuch as immunisation, family planning and maternal child health care etc to the people of this village.

The investigator selected another village for the study was Zameenkollankondan as control group. The distancebetween the Zameenkollankondanvillage and Sri. K. Ramachandran Naidu College of nursing was 15 km.The total population of that village was 7218**.** The total family living in this village was 1347. In that, 3634 were males and 3584 were females.Aged between 41-70 years was 2920. The primary health centre was providing the basic medical care facilities such as immunisation, family planning and maternal child health care etc to the people of this village.

POPULATION

The population of the study was the patients with hypertension between the age group of 41-70 years.

SAMPLE

Samples consist of pre hypertension and stage I hypertension patients in the age group of 41-70 years and residing at Desigapuram village and Zameenkollankondan village in Virudhunagar.

SAMPLE SIZE

The Sample size for the study was 60. Among 60 samples, 30 persons were in experimental group and another 30 persons were in control group.

SAMPLING TECHNIQUE

Step 1: The non probability purposive sampling technique was adopted for this study. The study was conducted in Desigapuram village and Zameenkollankondan village atVirudhunagar. The total population of Desigapuram village was 3256. The total family living in this village was 523. In that 1642 were males and 1614 were females, among them 1205 persons were under the age group of 41-70 years.According to the classification of hypertension among 230 study population, 194 persons had normal Blood pressure, 25 persons had pre hypertension and 5 persons had stage I hypertension. 36 samples were identified in the age group of 41-70 years. Out of 36, the investigator selected 30 samples who were in prehypertension (25 samples) and stage I hypertension (5 samples) for the experimental group. The samples who fulfilled the inclusive criteria were selected by using purposive sampling technique.

Step 2: The investigator selected another village for this study was Zameenkollankondan as control group. The total population of the village was 7218**.**

The total family living in this village was 1347. In that 3634 were males and 3584 were females, among them 2920 members were under the age group of 41-70 years. According to the classification of hypertension among 240 study population, 202 persons had normal Blood pressure, 27persons had pre hypertension and 3 persons had stage I hypertension. 38 samples were identified in the age group of 41-70 years. From 38 samples the investigator selected 30 samples who were in prehypertension (27 samples) and stage I hypertension (3 samples) for the control group. The samples who fulfilled the inclusive criteria were selected by using purposive sampling technique.

CRITERIA FOR SAMPLE SELECTION

The samples were selected based on the following inclusion and exclusion criteria

Inclusive criteria

- Patients with hypertension who had the pre and stage I hypertension (systolic blood pressure level between 121mmHg to 159mmHg and diastolic blood pressure level between 81 mmHg to 99mmHg).
- The patients who were in the age group of 41- 70 years.
- The patientsof both males and females.
- The patients who were present during the period of data collection.
- The patients who were able to understand Tamil and English.

Exclusive criteria

- The patients who had blood pressure below 120 /80mmHg and above 160/100mmHg.
- The patients with hypertension associated with other systemic illness such as diabetes mellitus, renal disease and cardiac disease.

- ❖ The patient those who were already diagnosed as hypertensive patients and those who were on regular medications.
- ❖ The patients who were not willing to participate.
- ❖ The patients who were already followedsavasana and other alternative therapies.

RESEARCH TOOL AND TECHNIQUE

DEVELOPMENT AND DESCRIPTION OF TOOL:

The method and procedures employed for the collection of data are called technique and instrument used are called tool. The tool consists of two sections.

SECTION: A

DEMOGRAPHIC DATA

- ➢ It deals with demographic variables include age, sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

SECTION: B

SPHYGMOMANOMETER AND STETHOSCOPE

Assessing the level of blood pressure by using sphygmomanometerand stethoscope.

SCORING PROCEDURE

Assessing the level of blood pressure by using sphygmomanometerand stethoscope.

The investigator assessed the level of blood pressure by using stethoscope and sphygmomanometer. If the instrument shows 120/80mmHg or below the score is zero, between 121-139/81-89mmHg the score is one, 140-159/90-99mmHg the score is two and above 160/100 mmHg the score is three based on the classification of national institutes of health. It was interpreted as follows,

Scoring key

SCORE	INTERPRETATION
0	Normal
1	Pre hypertension
2	Stage I hypertension
3	Stage II hypertension

DESCRIPTION OF INTERVENTION

Savasanarefers to lying on back with arms and legs at 45 degree angle, inhaling deeply, tensing the entire body(Clench jaw, purse lips, flex leg and arm muscles, tighten buttocks, curl toes, tighten abdomen, wrinkle forehead, tense ears, blow air into cheeks and clench fists), exhaling and relaxing the entire body from head to toe,breathing normally, keeping mind blank for about twenty minutes/dayfor oneweek at morning before breakfast.Savasana removes fatigue, relieves tensions of the mind, increases overall efficiency of the body, tones up the nervous system and controls high blood pressure.

- Explainabout the importance and effect of savasanaon hypertension.
- Consent was obtained from each patient and reassurance was provided that the collected data would be kept confidential for one minute.
- Explain the procedure and make the patient to lie on his back on a firm comfortable surface of the bed before breakfast.
- Keep arms and legs at 45 degree angle and close the eyes.
- Inhale deeply, hold it and tense the entire body for 2 minutes. Clench jaw, purse lips, flex leg and arm muscles, tighten buttocks, curl toes, tighten abdomen, wrinkle forehead, tense ears, blow air into cheeks and clench fists.
- Now start relaxing the body parts from head to toe one by one that is toes, soles, ankles, calf muscles, knee joints, thighs, waist, stomach, chest, fingers, palms, wrist, elbows, shoulders, neck,chin, cheeks, mouth, nose, eyes, ears, forehead and finally top of the head for 6 minutes.
- Breathe normally for 5 minutes.
- Keep the mind blank for 2 minutes.
- Slowly start to come back by wiggling fingers and toes for one minute while still keeping eyes closed.
- Bring knees to chest and arms around knees for one minute.
- Keep knees against chest, roll onto right side and slowly push to an upright position using right elbow for one minute.
- Do it for 20 minutes per day and continue for one week.

CONTENT VALIDITY:

The content of the tool was established on the basis of the opinion of one medical expert and four nursing experts in the field of medical surgical nursing.

RELIABILITY OF THE TOOL:

The researcher tested the reliability of tool by test retest method by using Carl Pearson`s correlation coefficient formula. The reliability of the sphygmomanometer was 0.92 found to be feasible to conduct the study.

PILOT STUDY

It was a rehearsal for the main study. The researcher got permission from the Principal, research ethical committee and HOD in medical surgical nursing of Sri.K. Ramachandran Naidu College of Nursing. A formal permission was obtained from medical officer of primary health centre at virudhunagar. In this district, the investigator selected kizhavikulam village for conducting the pilot study. The data was collected for one week (25-7-2013 to 31-7-2013).

The total population of kizhavikulam village was 6556. According to classification of national institutes of health among 80 study population, 72 persons had normal Blood pressure, 3persons had pre hypertension, 3 persons had stage I hypertension and 2 persons had stage II hypertension. 8 samples wereidentified in the age group of 41-70 years. In that the investigator selected 3 samples for the experimental group and 3 samples for the control group who fulfilled the inclusive criteria by using purposive sampling technique.

The pretest level of blood pressure was assessed by using sphygmomanometer and stethoscope for both experimental and control group. Rapport was established with the patients and a brief introduction about the study was given. Consent was obtained from each patient and reassurance was provided that the collected data

would be kept confidential. The data related to demographic variables were collected from the samples.

The researcher administered twenty minutes savasana for one time per day for one week to the experimental group and control group not received the intervention. The posttest was done for the both experimental and control group. The data were analyzed and the results of the pilot study showed that the experimental group had a reduction of the blood pressure as compared to the control group by using sphygmomanometer and stethoscope. The study was found to be feasible and hence the same procedure was decided to follow in the main study. The samples selected for the pilot study were not included for the main study.

DATA COLLECTION PROCEDURE

The researcher got permission from the Principal, research and ethical committee of Sri. K. Ramachandran Naidu College of Nursing. Before the data collection formal permission was obtained from the medical officer of primary health centre in zameenkollankondan at Virudhunagar. In this district, the investigator selected two villages for conducting the study. In those two villages, desigapuram village was selected for experimental group and zameenkollankondan village was selected for control group. The data was collected from 01-08-2013 to 31-08-2013.

The investigator introduced herself to the people and established rapport with them during the data collection procedure. The participants were assured that there is no physical or emotional harm would be done to them during the course of the study. The investigator obtained an informed consent from each client.

Phase I: Selection of samples:

In Desigapuram village aged between 41-70 years were 1205. Each day the investigator checked Blood pressure for 35-40 persons and identified 4-6 hypertensive patients.Totally 36 patients were identified for 6 days. Based on the classification of national institutes of health, out of 36 samples, the investigator selected 30 samples who were in prehypertension (25 samples) and stage I hypertension (5 samples) for the experimental group by using purposive sampling techniquethose who fulfilled the inclusive criteria.

The investigator selected the another village is Zameenkollankondan. In this village aged between 41-70 years were 2920. Each day the investigator checked Blood pressure for 25-30 persons and identified 3-4 hypertensive patients. Totally 38 patients were identified for 8 days. Based on the classification of national institutes of health, out of 38 samples, the investigator selected 30 samples who were in prehypertension (27 samples) and stage I hypertension (3 samples) for the control group by using purposive sampling technique those who fulfilled the inclusive criteria.

Phase II: Pre assessment of the level of blood pressure for experimental and control group:

The pretest level of blood pressure was assessed by using sphygmomanometer and stethoscope for experimental group for 6 days and 8 days for control group. Rapport was established with the patients and a brief introduction about the study was given. Consent was obtained from each patient and reassurance was provided that the collected data would be kept confidential. The data related to demographic variables were collected from the samples.

Phase III: Administration of savasanafor experimental group:

The researcher administered savasana for twenty minutes about one time per day forone week for 30 patientsin experimental group and control group didn't receive the intervention.

Phase IV: Post assessment of level of blood pressure for experimental and control group:

The posttest was done for the both experimental and control group after 7 days. After assessment data analysis and interpretation was done.There was a significant reduction in level of Blood pressure among patients with hypertension in the experimental group. There was no significant reduction in level of Blood pressure among patients with hypertension in the control group.

PLAN FOR DATA ANALYSIS

After the data collection the collected data were organized, calculated, summarized and analyzed according to the objectives of the study. Data were analyzed by using descriptive and inferential statistics.

DESCRIPTIVE STATISTICS

- The frequency and Percentage distribution were used to analyze the demographic variables of the samples.
- Mean and standard deviation were used to assess the effectiveness of savasana on reduction of blood pressure.
- Frequency and Percentage distribution were used to assess the pre and post test level of blood pressure among patients with hypertension in experimental and control group.

INFERENTIAL STATISTICS

- Unpaired ‘t’ test was used to compare the posttest level of Blood pressure among patients with hypertension in both experimental and control group.
- Paired `t’ test was used to compare the pretest and posttest level of blood pressure among patients with hypertension in experimental group.
- Chi-Square test was used to analyze the association of posttest level of blood pressure with their selected demographic variables of experimental and control group.

PROTECTION OF HUMAN RIGHTS

Research proposal was approved by the dissertation committee prior to the pilot study and the main study permission was obtained from the Principal, Research and ethical committee of Sri. K. Ramachandran Naidu College of nursing Sankarankovil.

An oral consent from each patient was obtained before starting the data collection. Assurance was given to the patients that confidentiality was maintained throughout the data collection period.

SUMMARY

This chapter has dealt briefly with research methodology adapted for the study. It included research approach, research design, variables, setting of the study, population, sample, sample size, sampling technique, criteria for sample selection, development and description of tool, scoring procedure, intervention, content validity, reliability, pilot study, data collection procedure, plan for data analysis and protection of human rights.

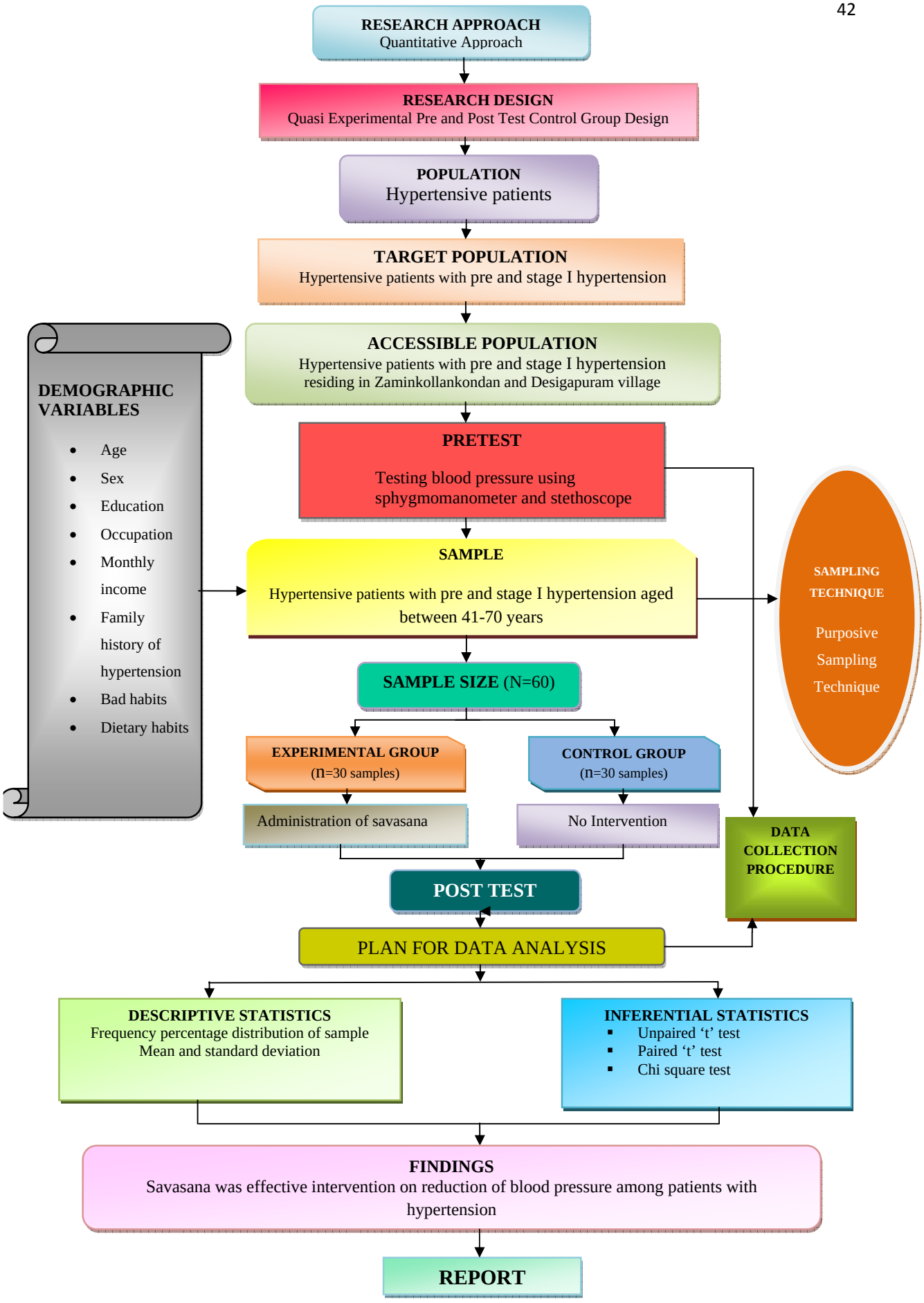

FIGURE 3: SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This Chapter deals with the analysis and interpretation of the data collected from the samples to assess the effectiveness of savasana on reduction of blood pressure among the patients with hypertension in selected villages at virudhunagar.

Analysis is the method of organizing, scrutinizing and sorting the data in such a way that research questions can be answered.**[polit, Hungler (2009)]**

The purpose of analysis is to find out the effectiveness so that the relation of the problem can be tested.

The analysis and interpretation of the data is based on data collection. The results are computed by using descriptive (mean, Frequency, percentage distribution and standard deviation) and inferential ('t'- test and chi square test) statistics. The data has been tabulated and organized as follows.

ORGANIZATION OF DATA

Section I:Assessment of demographic variables of the patients with hypertensionin experimental and control group.

- Frequency and percentage distribution of the samples based on demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

Section II: **Assessmentof the level of blood pressure among patients with hypertension in the experimental and control group**

- Frequency and percentage distribution of pre and posttest level of systolic blood pressure among experimental group
- Frequency and percentage distributionof pre and posttest level of systolic blood pressure among controlgroup
- Frequency and percentage distributionof pre and posttest level of diastolic blood pressure among experimental group
- Frequency and percentage distributionof pre and posttest level of diastolic blood pressure among control group

Section III: **Comparison of level of blood pressure in experimental and control group among patients with hypertension**

- Comparison of posttest level of blood pressure between the experimental and control group
- Comparison of pre and posttest level of blood pressure among experimental group

Section IV: Association of posttest level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables

- Association of posttest level of blood pressure in experimental group with the selected demographic variables.
- Association of posttest level of blood pressure in control group with the selected demographic variables.

PRESENTATION OF DATA:

SECTION I:

ASSESSMENT OF DEMOGRAPHIC VARIABLES OF PATIENTS WITH HYPERTENSION IN EXPERIMENTAL AND CONTROL GROUP

Table 1: Frequency and percentage distribution of the samples based on demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

(N=60)

S.No	Demographic variables	Experimental group		Control group	
		f	%	f	%
1	**Age**				
	a) 41-50 Years	12	40	9	30
	b) 51-60 Years	12	40	14	46.67
	c) 61-70 Years	6	20	7	23.33
2	**Sex**				
	a) Male	10	33.33	13	43.33
	b) Female	20	66.67	17	56.67
3	**Education**				
	a) No formal education	15	50	17	56.67
	b) Primary education	13	43.33	9	30
	c) High school education	2	6.67	4	13.33
	d) Higher secondary education	0	0	0	0
	e) Under graduate education	0	0	0	0
	f) Post graduate education	0	0	0	0

Table 1 continues.....

S.No	Demographic variables	Experimental group		Control group	
		f	%	f	%
4	**Occupation**				
	a) Business	0	0	0	0
	b) Coolie	22	73.33	22	73.33
	c) Private employee	4	13.34	5	16.67
	d) Government employee	1	3.33	0	0
	e) Unemployed	3	10	3	10
5	**Monthly income**				
	a) <3000	20	66.66	15	50
	b) 3001-5000	8	26.67	11	36.67
	c) 5001-10,000	2	6.67	4	13.33
	d) >10,000	0	0	0	0
6	**Family history of hypertension**				
	a) Yes	7	23.33	6	20
	b) No	23	76.67	24	80
7	**Bad habits**				
	a) Yes	8	26.67	14	46.67
	b) No	22	73.33	16	53.33
8	**Dietary habits**				
	a) Vegetarian	5	16.67	1	3.33
	b) Non-vegetarian	25	83.33	29	96.67

Table 1 denotes the frequency and percentage distribution of the samples based on demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension,bad habits and dietary habits in the experimental and control group.

While considering the age, in the experimental group out of 30 patients, 12(40%) of them were between the age group of 41-50 years, 12(40%) of patients belongs to them 51-60years and 6(20%) of patients belongs to 61-70 years whereas in the control group out of 30 patients 9(30%) of them were between the age group of 41-50 years, 14(46.67%) of patients belongs to them 51-60years and 7(23.33%) of patients belongs to 61-70 years.

With regard to sex in the experimental group, out of 30 patients, 10(33.33%) of the samples were males and 20(66.67%) of them were females, whereas in the control group out of 30 patients 13(43.33%) of them were males and 17(56.67%) of patients were females.

Based on the education in the experimental group out of 30 patients, 15(50%) of them were in no formal education, 13(43.33%) of them were in primary education, 2(6.67%) of them were in high school education, whereas in the control group out of 30 patients, 17(56.67%) of them were in no formal education, 9(30%) of them were in primary education, 4(13.33) of them were in high school education.

In relation with occupation in the experimental group among the 30 patients with hypertension, 22(73.33%) of them were coolie, 4(13.34%) of them were private employees, 1(3.33%) was government employee, 3(10%) were unemployed, whereas

in the control group out of 30 patients, 22(73.33%) of them were coolie, 5(16.67%) of them were private employees, 3(10%) of them were unemployed.

Based on the monthly income in the experimental group out of 30 patients, 20(66.66%) of them were in below 3000, 8(26.67%) of them were in 3001-5001, 2(6.67%) of them were in 5001-10,000, whereas in the control group out of 30 patients, 15(50%) of them were in below 3000, 11(36.67%) of them were in 3001-5000, 4(13.33%) of them were in 5001-10,000.

Regarding the family history of hypertension, in the experimental group out of 30 patients, 7 (23.33%) of them had family history of hypertension, 23(76.67%) of patients did not had family history of hypertension, whereas in the control group out of 30 patients, 6(20%) of them had family history of hypertension, 24(80%) of them did not had family history of hypertension.

In relation to the bad habits in the experimental group out of 30 patients, 8(26.67%) of them had bad habits, 22(73.33%) of them do not have bad habits, whereas in the control group 14(46.67%) of them had bad habits, 16(53.33%) of them do not have bad habits.

With regard to dietary habits, in the experimental group out of 30 patients, 5(16.67%) of patients were vegetarian and 25(83.33%) of patients were non-vegetarian, whereas in the control group out of 30 patients 1(3.33%) of patients were vegetarian and 29(96.67%) of them were non vegetarian.

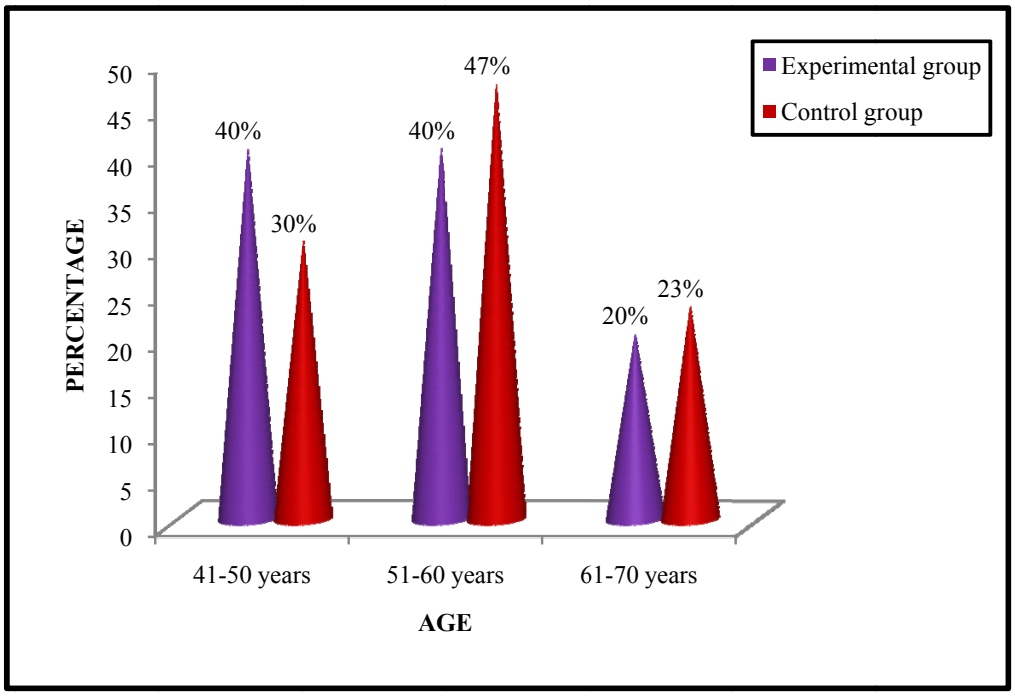

Figure 4: Distribution of sample according to age

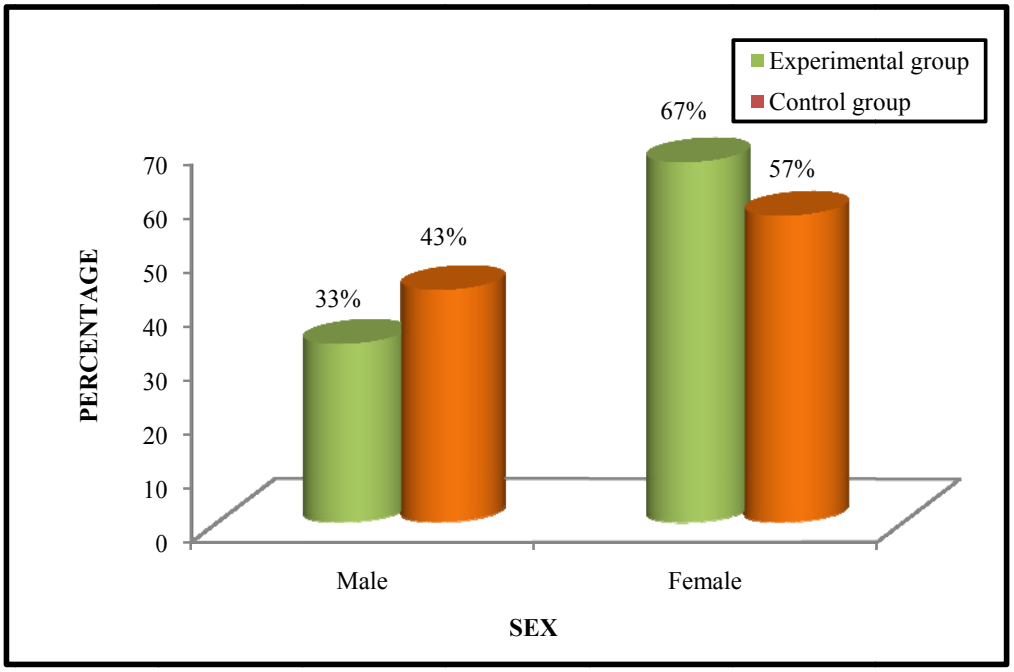

Figure 5: Distribution of sample according to sex

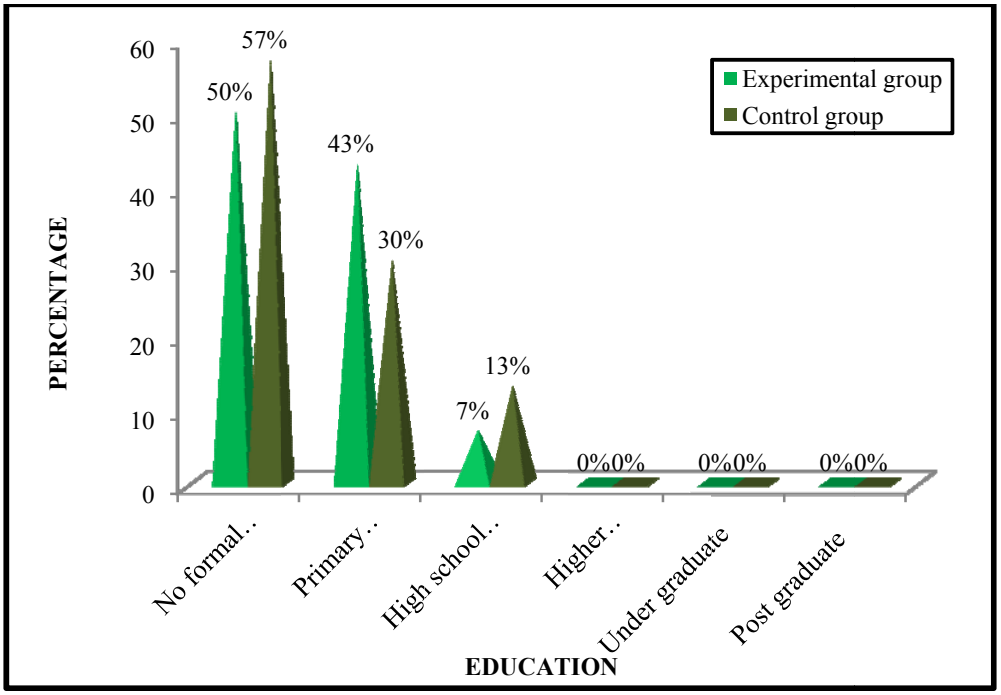

Figure 6: Distribution of sample according to education

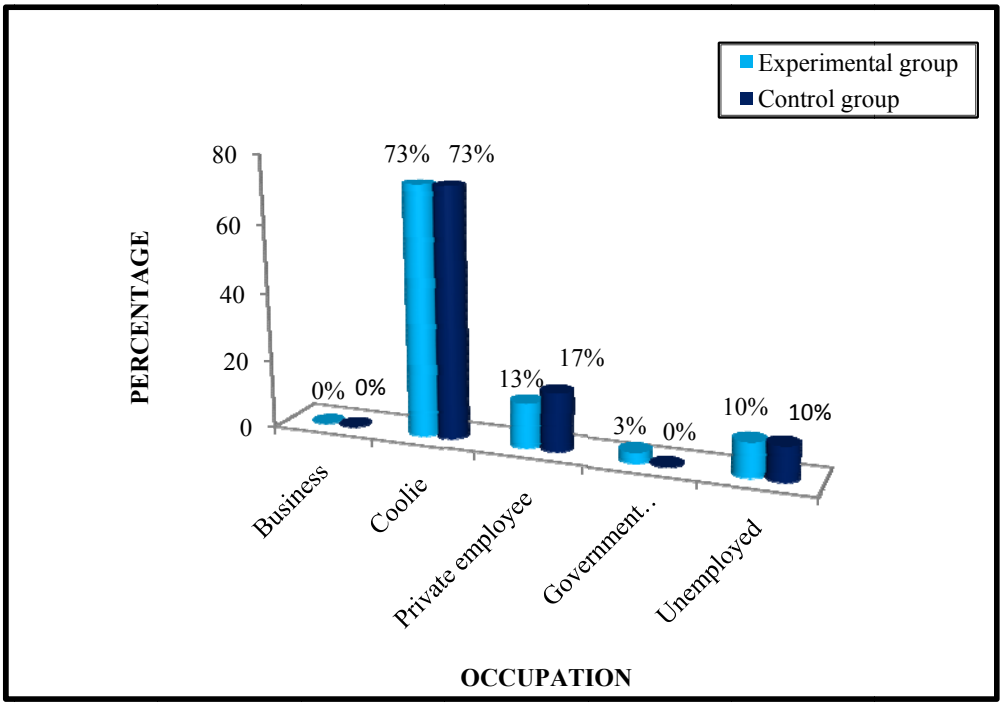

Figure 7: Distribution of sample according to occupation

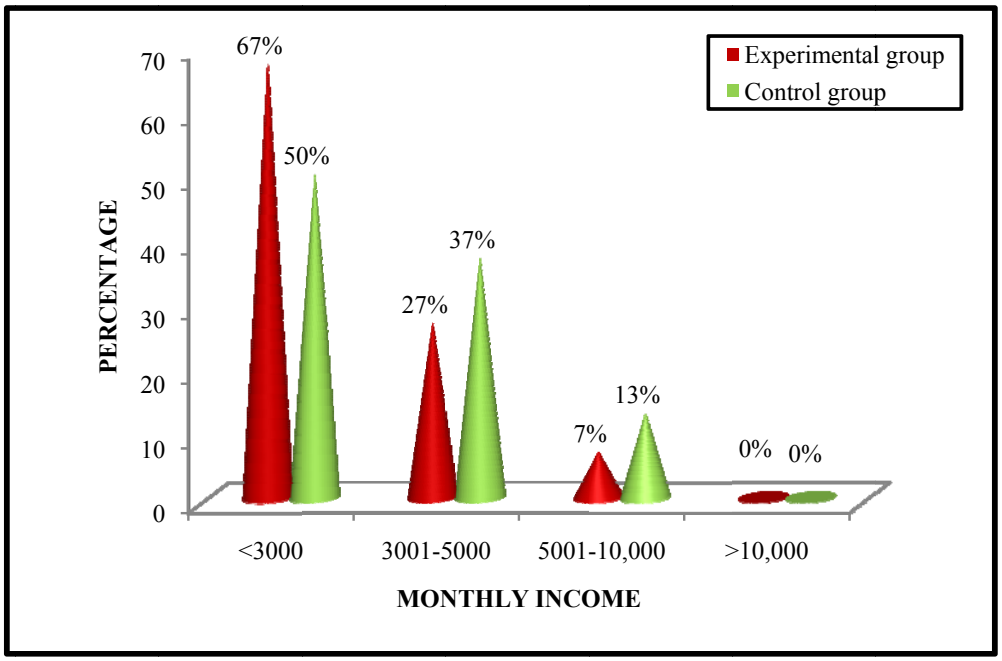

Figure 8: Distribution of sample according to monthly income

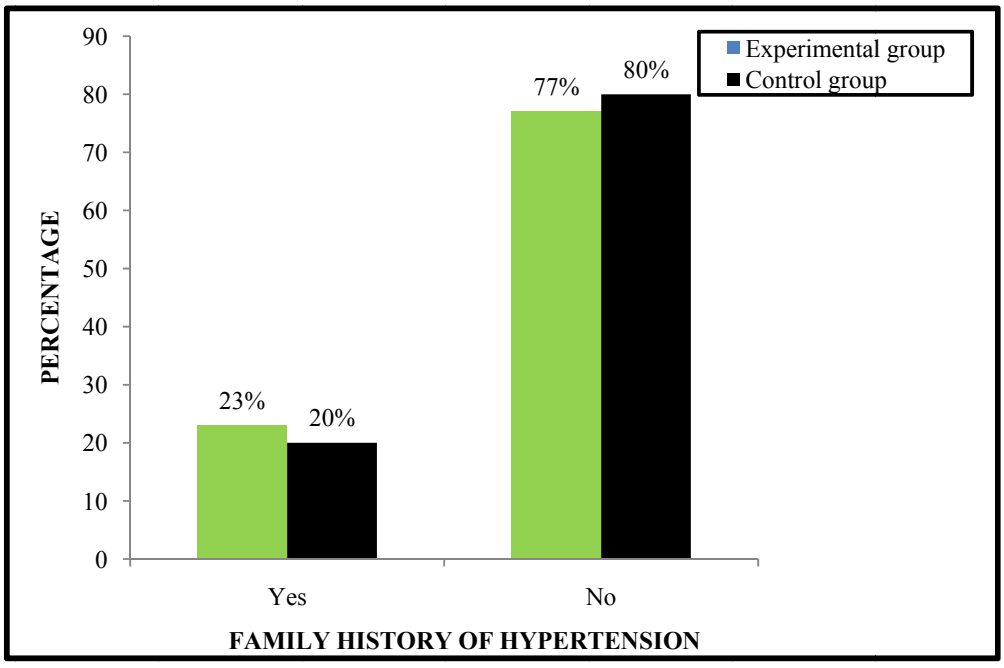

Figure 9: Distribution of sample according to family history of hypertension

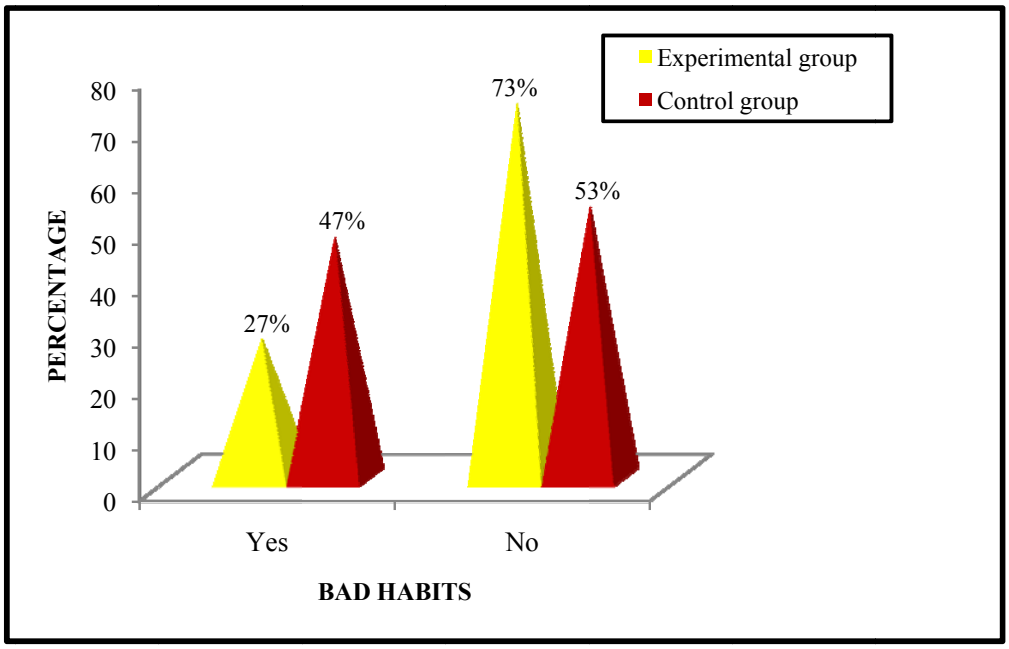

Figure 10: Distribution of sample according to bad habits

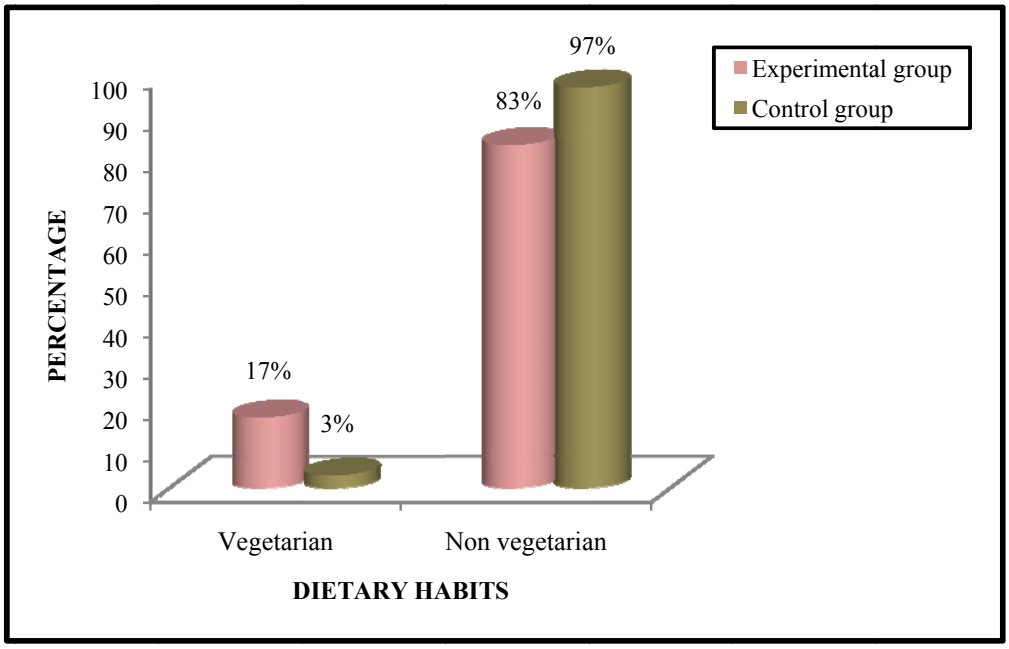

Figure 11: Distribution of sample according to dietary habits

SECTION: II

ASSESSMENT OF THE LEVEL OF BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN THE EXPERIMENTAL AND CONTROL GROUP

Table 2: Frequency and percentage distribution of pre and posttest level of systolic blood pressure among patients with hypertension in experimental group

(N=30)

S.No	Level of Blood pressure	Pretest		Posttest	
		f	%	f	%
1	Normal	-	-	25	83.33
2	Pre Hypertension	25	83.33	5	16.67
3	Stage I Hypertension	5	16.67	-	-
4	Stage II Hypertension	-	-	-	-

Table 2 reveals the frequency and percentage distribution of pre and posttest level of systolic blood pressure among experimental group. It is evident from the above table that in the pretest level of systolic blood pressure among the experimental group, none of the patients had normal blood pressure, 25(83.3%) of the patients had pre hypertension, 5(16.67%) of them had stage I hypertension, none of them had stage II hypertension, where as in the posttest level of systolic blood pressure among the experimental group 25(83.3%) of the patients had normal blood pressure, 5(16.67%) of them had pre hypertension, none of them had stage I hypertension and none of them had stage II hypertension.

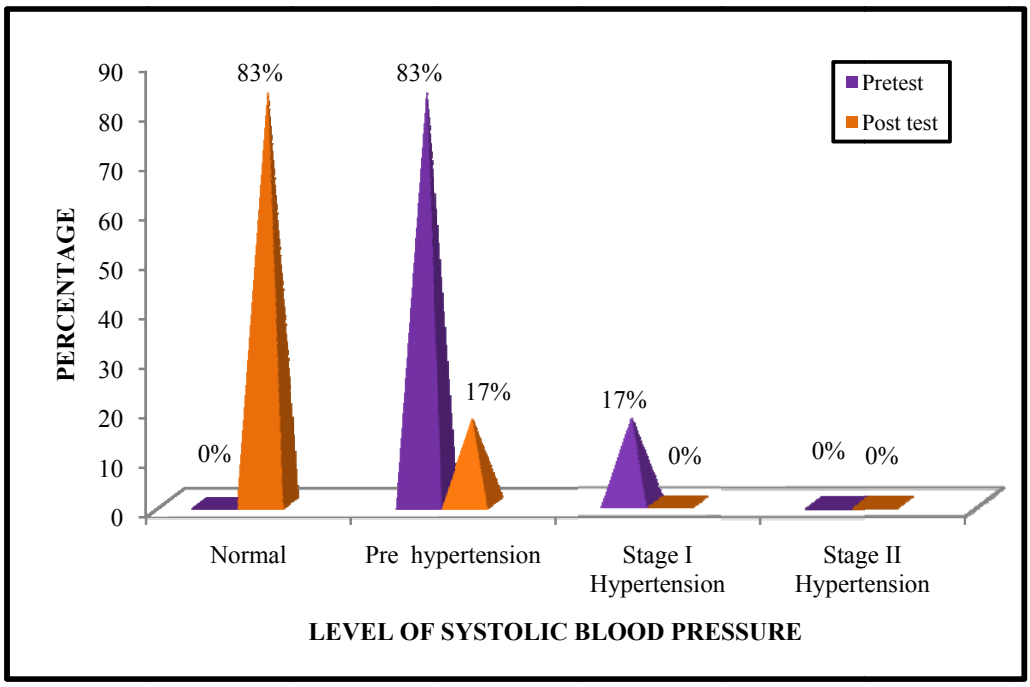

Figure 12: Frequency and percentage distribution of pre and posttest level of Systolic Blood Pressure among patients with hypertension in Experimental Group

Table 3: Frequency and percentage distribution of pre and posttest level of systolic blood pressure among patients with hypertension in control group

(N = 30)

S.No	Level of Blood Pressure	Pretest		Posttest	
		f	%	f	%
1	Normal	-	-	-	-
2	Pre Hypertension	27	90	25	83.33
3	Stage I Hypertension	3	10	5	16.67
4	Stage II Hypertension	-	-	-	-

Table 3 shows the frequency and percentage distribution of pre and posttest level of systolic blood pressure among control group from the above table it is revealed that in the pretest level of systolic blood pressure among the control group, none of them had normal blood pressure, 27(90%) of them had pre hypertension, 3(10%) of them had stage I hypertension and none of them had stage II hypertension, whereas in the posttest level of systolic blood pressure among the control group, none of them had normal blood pressure, 25(83.33%) of them had pre hypertension, 5(16.67%) of them had stage I hypertension, none of them had stage II hypertension.

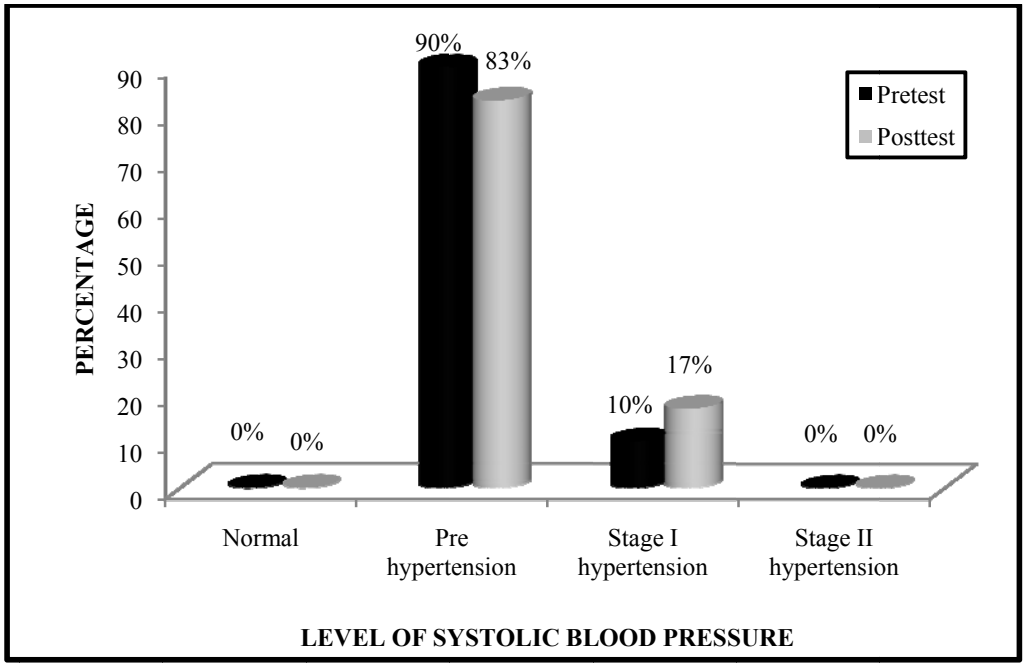

Figure 13: Frequency and percentage distribution of pre and posttest level of systolic blood pressure among patients with hypertension in control group.

Table 4: Frequency and percentage distribution of pre and posttest level of diastolic blood pressureamong patients with hypertension in experimental group (N=60)

S.No	Level of Blood Pressure	Pretest		Posttest	
		f	%	f	%
1	Normal	-	-	25	83.33
2	Pre Hypertension	25	83.33	5	16.67
3	Stage I Hypertension	5	16.67	-	-
4	Stage II Hypertension	-	-	-	-

Table 4 shows the frequency and percentage distribution of pre and posttest level of diastolic blood pressure among experimental group the above table reveals that in the pretest level of diastolic blood pressure among the experimental group none of the patients had normal blood pressure, 25(83.33%) of them had pre hypertension, 5(16.67%) of them had stage I hypertension, none of them had stage II hypertension, whereas in the posttest level of diastolic blood pressure among the experimental group 25(83.33%) of the patients had normal blood pressure, 5(16.67%) of them had pre hypertension, none of them had stage I hypertension and none of them had stage II hypertension.

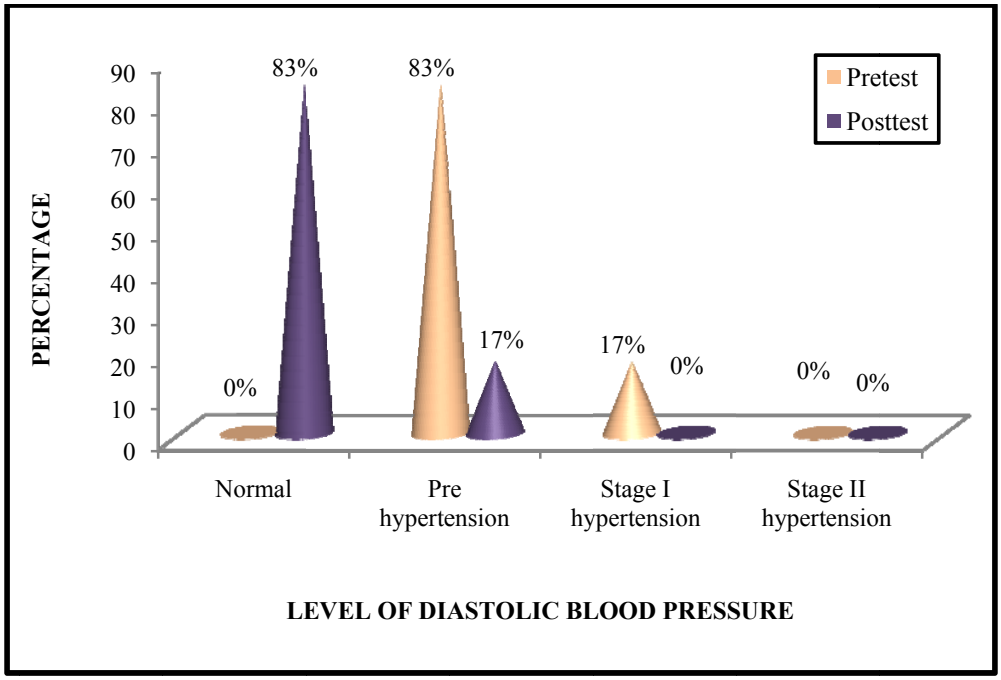

Figure 14: Frequency and percentage distribution of pre and posttest level of diastolic blood pressure among patients with hypertension in experimental group.

Table 5: Frequency and percentage distribution of pre and posttest level of diastolic blood pressure among patients with hypertension in control group.

(N = 30)

S.No	Level of Blood Pressure	Pretest		Posttest	
		f	%	f	%
1	Normal	-	-	-	-
2	Pre Hypertension	27	90	25	83.33
3	Stage I Hypertension	3	10	5	16.67
4	Stage II Hypertension	-	-	-	-

Table 5 shows the frequency and percentage distribution of pre and posttest level of diastolic blood pressure among control group, the above table reveals that in the pretest level of diastolic blood pressure among the control group, none of the patients had normal blood pressure, 27(90%) of them had pre hypertension, 3(10%) of patients had stage I hypertension, none of the patients had stage II hypertension, whereas in the posttest level of diastolic blood pressure among the control group, none of them had normal blood pressure, 25(83.33%) of them had pre hypertension, 5(16.67%) of them had stage I hypertension and none of them had stage II hypertension.

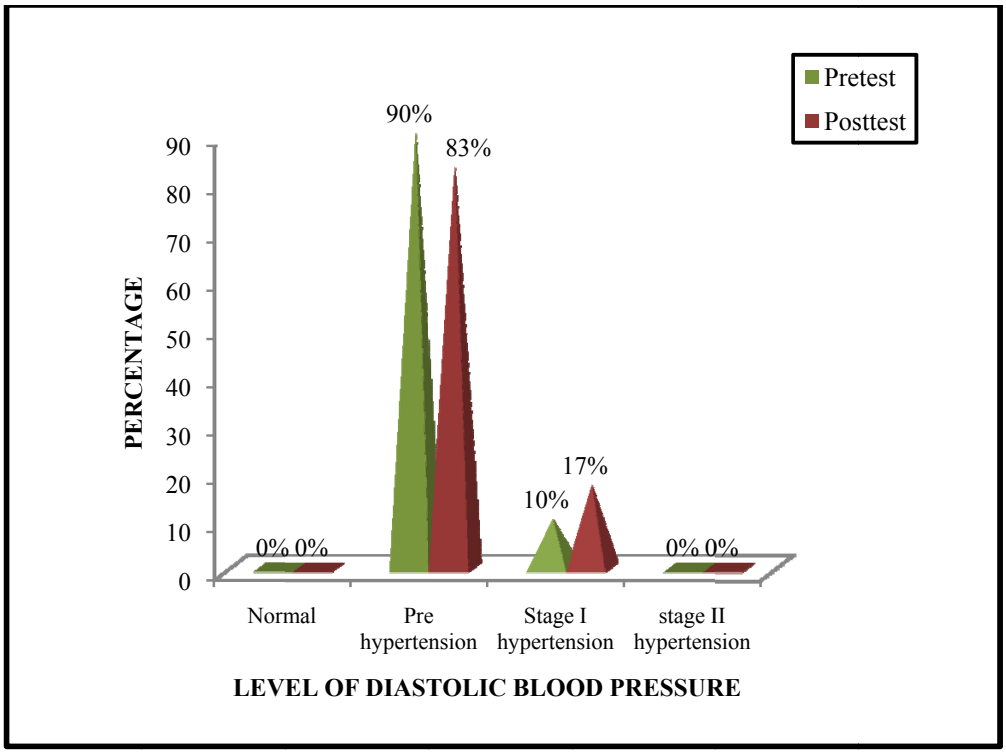

Figure15:Frequency and percentage distribution of pre and posttest level of diastolic blood pressure among patients with hypertension in control group.

SECTION: IIICOMPARISON OF POSTTEST LEVEL OF BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN EXPERIMENTAL GROUP AND CONTROL GROUP

Table 6: Comparison of post test level of blood pressure between the experimental and control group

(N=60)

S.No	Blood Pressure	Experimental Group		Control Group		t Value
		Mean	Standard Deviation	Mean	Standard Deviation	
1	Systolic	0.16	0.36	1.16	0.39	15.625 S
2	Diastolic	0.16	0.36	1.16	0.39	15.625 S

S = Significant

Table 6 reveals the unpaired `t' test to compare the post test level of blood pressure between experimental and control group with regard to the post test level of systolic blood pressure between experimental and control group it was found that the `t' value was 15.625, and the diastolic blood pressure between experimental and control group it was found that the `t' value was 15.625 indicating that there is significant difference in post test level of blood pressure between the experimental and control group at $p<0.05$ level. Hence the stated hypothesis, "the mean post test level of blood pressure among patients with hypertension in experimental group will be significantly lower thanthe mean post test level of blood pressure in control group". Hence the research hypothesis was accepted.

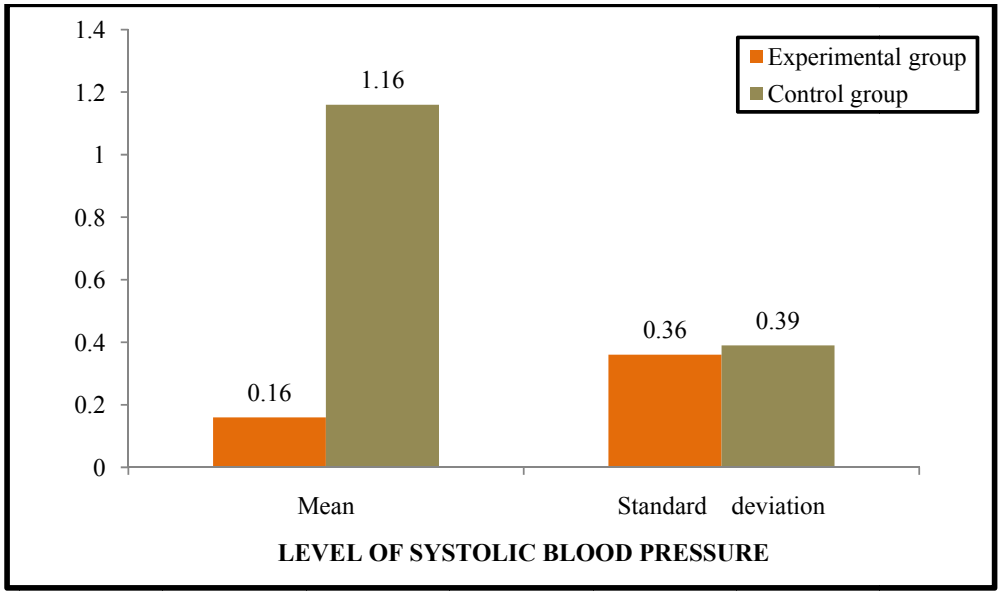

Figure 16: Comparison of posttest level of systolic blood pressure among patients with hypertension in experimental and control group

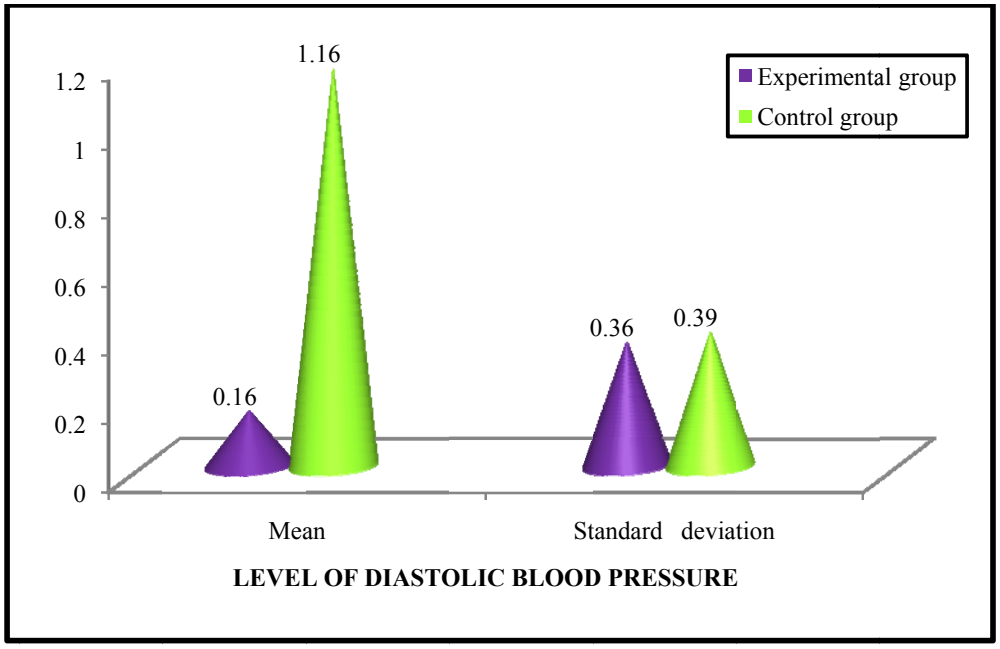

Figure 17: Comparison of posttest level of diastolic blood pressure amongpatients with hypertension in experimental and control group

SECTION IV: ASSOCIATION OF POSTTEST LEVEL OF BLOOD PRESSURE IN EXPERIMENTAL AND CONTROL GROUP WITH DEMOGRAPHIC VARIABLES.

Table 7:Association of posttest level of blood pressure in experimental group with demographic variables. (N = 30)

S. No.	Demographic Variables	Level of Blood pressure								χ^2
		Normal		Pre hypertension		StageI hypertension		Stage II hypertension		
		f	%	f	%	f	%	f	%	
1	**Age**									
	a) 41-50 years	12	40	0	0	0	0	0	0	4.8
	b) 51-60 years	8	26.7	4	13.3	0	0	0	0	d(f)=6
	c) 61-70 years	5	16.7	1	3.33	0	0	0	0	NS
2	**Sex**									0.112
	a) Male	8	26.7	2	6.67	0	0	0	0	d(f)=3
	b) Female	17	56.6	3	10	0	0	0	0	NS
3	**Education**									
	a) No formal education	13	43.3	2	6.67	0	0	0	0	
	b) Primary school education	10	33.3	3	10	0	0	0	0	0.903
	c) High school education	2	6.67	0	0	0	0	0	0	d(f)=15 NS
	d) Higher secondary education	0	0	0	0	0	0	0	0	
	e) Under graduate	0	0	0	0	0	0	0	0	
	f) Post graduate	0	0	0	0	0	0	0	0	

Table7continues….

S. No.	Demographic Variables	Level of Blood pressure								χ 2
		Normal		Prehypertension		StageIhypertension		Stage II hypertension		
		f	%	f	%	f	%	f	%	
4	**Occupation**									
	a) Business	0	0	0	0	0	0	0	0	7.481
	b) Coolie	20	66.7	2	6.67	0	0	0	0	d(f)=
	c) Private employee	4	13.3	0	0	0	0	0	0	12
	d) Government employee	0	0	1	3.33	0	0	0	0	NS
	e) Unemployed	1	3.33	2	6.67	0	0	0	0	
5	**Monthly income**									
	a) < 3000	18	60	2	6.67	0	0	0	0	3.543
	b) 3001-5000	5	16.6	3	10	0	0	0	0	d(f)=
	c) 5001-10,000	2	6.67	0	0	0	0	0	0	9
	d) > 10,000	0	0	0	0	0	0	0	0	NS
6	**Family History of Hypertension**									8.850
	a) Yes	3	10	4	13.34	0	0	0	0	d(f)=
	b) No	22	73.3	1	3.33	0	0	0	0	3
										NS
7	**Bad habits**									6.190
	a) Yes	7	23.3	1	3.33	0	0	0	0	d(f) =
	b) No	18	60	4	13.34	0	0	0	0	3
										NS
8	**Dietary habits**									1.198
	a) Vegetarian	5	16.7	0	0	0	0	0	0	d(f)
	b) Non vegetarian	20	66.6	5	16.7	0	0	0	0	=3
										NS

S = Significant, NS = Non Significant

Table 7reveals the chi-square test to associate the post test level of blood pressure with the selected demographic variables like age, sex, education, occupation, monthly income, family history of hypertension, bad habits anddietary habits in the experimental group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the post test level of blood pressure with the selected demographic variables at $P<0.05$ level. Hence the research hypothesis was rejected.

Table 8: Association of posttest level of blood pressure in control group with demographic variables

(N = 30)

S. No.	Demographic Variables	Level of Blood pressure								χ 2
		Normal		Pre hypertension		Stage I hypertension		Stage II hypertension		
		f	%	f	%	f	%	f	%	
1	**Age**									
	a) 41-50 years	0	0	8	26.7	1	3.33	0	0	1.446
	b) 51-60 years	0	0	12	40	2	6.67	0	0	d(f)=6
	c) 61-70 years	0	0	4	13.3	3	10	0	0	NS
2	**Sex**									1.329
	a) Male	0	0	12	40	1	3.33	0	0	d(f)=3
	b) Female	0	0	13	43.3	4	13.4	0	0	NS
3	**Education**									
	a) No formal education	0	0	13	43.3	4	13.3	0	0	
	b) Primary school education	0	0	8	26.7	1	3.34	0	0	1.608
	c) High school education	0	0	4	13.3	0	0	0	0	d(f)=15 NS
	d) Higher secondary education	0	0	0	0	0	0	0	0	
	e) Under graduate	0	0	0	0	0	0	0	0	
	f) Post graduate	0	0	0	0	0	0	0	0	

Table 8 continues….

S. No.	Demographic Variables	Level of Blood pressure								χ^2
		Normal		Prehypertension		StageI hypertension		Stage II hypertension		
		f	%	f	%	f	%	f	%	
4	**Occupation**									
	a) Business	0	0	0	0	0	0	0	0	
	b) Coolie	0	0	18	60	4	13.3	0	0	
	c) Private employee	0	0	5	16.7	0	0	0	0	1.629
	d) Government	0	0	0	0	0	0	0	0	d(f)=
	employee	0	0	2	6.67	1	3.33	0	0	12
	e) Unemployed									NS
5	**Monthly income**									
	a) < 3000	0	0	11	36.7	4	13.3	0	0	2.273
	b) 3001-5000	0	0	10	33.3	1	3.34	0	0	d(f)=
	c) 5001-10,000	0	0	4	13.3	0	0	0	0	9
	d) > 10,000	0	0	0	0	0	0	0	0	NS
6	**Family History of Hypertension**									0.6
	a) Yes	0	0	3	10	3	10	0	0	d(f)=
	b) No	0	0	22	73.3	2	6.7	0	0	3
7	**Bad habits**									
	a) Yes	0	0	11	36.7	3	10	0	0	0.428
	b) No	0	0	14	46.6	2	6.7	0	0	d(f) = 3
8	**Dietary habits**									0.199
	a) Vegetarian	0	0	1	3.3	0	0	0	0	d(f)
	b) Non vegetarian	0	0	24	80	5	16.7	0	0	=3
										NS

S = Significant, NS = Non Significant

Table 8reveals the chi-square test to associate the post test level of blood pressure with the selected demographic variables like age, sex, education, occupation, monthly income, family history of hypertension, bad habits anddietary habitsin the control group. While analyzing the statistical significance at ($P<0.05$) level it shows that there was no significant association of the post test level of blood pressure with the selected demographic variables. Hence the research hypothesis was rejected.

CHAPTER V

DISCUSSION

This chapter deals with the discussion of the result of the data analysis to evaluate the effectiveness of savasanaon blood pressure among patients with hypertension.

The discussion is based on the objectives of the study and the hypotheses specified in the study.

MAJOR FINDINGS OF THE STUDY WERE

On analysis of frequency and percentage of demographic variables, majority of the patients 12 (40%) were between the age group of 41-50 years and 51-60 years among hypertensive patients in experimental group, whereas in the control group 14 (46.67%) of subjects were between the age group of 51-60 years. With regard to sex, majority of patients 20 (66.67%) were females in the experimental group, whereas in the control group 17 (56.67%) of patients were female.

With respect to education majority of the patients 15 (50%) had no formal education in the experimental group, whereas in the control group 17 (56.67%) of subjects had no formal education. With regard to occupation majority of patients 22 (73.33%) were belongs to coolie in the experimental group, whereas in the control group 22 (73.33%) of subjects were belongs to coolie.

With regard to monthly income, majority of the patients 20 (66.66%) of them were belongs to <3000, in the experimental group, whereas in the control group 15 (50%) of subjects were belongs to <3000. Regarding the family history of

hypertension, majority of patients 23 (76.67%) did not have family history of hypertension,in the experimental group and 24 (80%) in the control group did not have family history of hypertension

Regarding the bad habits majority of patients, 22 (73.33%) of them were do not have any bad habits in the experimental group. whereas in the control group, majority of patients 16 (53.33%) of them were do not have bad habits. With regard to dietary habits majority of patients 25 (83.33%) were belongs to non-vegetarian in the experimental group, whereas in the control group majority of patients, 29 (96.67%) were belongs to non-vegetarian.

The first objective was to assess the pretest and posttest level of blood pressure among patients with hypertension in experimental and control group.

On analysis the pretest level of blood pressure among experimental group, majority of patients 25 (83.33%) had prehypertension and in the control group majority of patients 27 (90%) had prehypertension.

On analysis the posttest level of blood pressure among experimental group, majority of patients 25 (83.33%) had normal level of blood pressure and in the control group majority of patients 25 (83.33%) had prehypertension.

The above result was supported by **National Health Examination Survey (2005)**in the united states found that in the population aged 20 years or older, an estimated 41.9 million men and 27.8 million women had prehypertension (SBP, 120-139 mmhg; DBP, 80-99 mmhg),12.8 million men and 12.2 million women had stage 1 hypertension (SBP, 140-159 mmhg; DBP, 90-99 mmhg) and 4.1million men and 6.9 million women had stage 2 hypertension (SBP $\geq$ 160 mmhg; DBP $\geq$ 100 mmhg). The

study results showed that there was significant increase in prevalence of prehypertension and stage 1 hypertension among the people in United States.

The second objective was to find out the effectiveness of savasana on blood pressure among patients with hypertension in experimental and control group.

On analysis of posttest level of blood pressure among experimental group, majority of patients 25 (83.33%) had normal level of blood pressure and in thecontrol group majority of patients 25 (83.33%) had prehypertension.

On analysis of mean score of blood pressure among experimental group was 0.16 and in control group was 1.16. Standard deviation after intervention among experimental group was 0.36 and in control group was 0.39 and calculated 't' value was 15.625. It shows reduction of blood pressure in experimental group.

The above result was supported by **sunder (2003)**study was conducted on effectiveness of savasana in management of hypertension in 2003, Mumbai. In this study savasana was practiced by 20 hypertensive patients underwent relaxation therapy programmed for a period of 4 weeks. To analyze the changes in cardiovascular and subjective responses to initial and follow up test paired t test was used. Day 1 premean 96.40, SD 4.661, improvement 10.27%. It indicates that a significant decrease of about 10 mmhg following savasana.

The third objective was to compare the pre and posttest level of blood pressure among patients with hypertension in experimental group.

On analysis of pre and posttest level of blood pressure among the experimental group, the mean blood pressure score was 1.16 and standard deviation was 0.39 for the pretest and mean blood pressure score was 0.16 with standard deviation was

0.36for the posttest and calculated‘t’ value was 16.33 . It shows the marked reduction in blood pressure in experimental group.

The above result was supported by**Gopal (2007)** had taken 45 subjects,systolic pressure from 140 to 180 mmhg and diastolic pressure from 90 to 180 mmhg. They were taught to perform savasana, twice a day for 30 minutes. The pulserate, blood pressure and respiration were recorded before and after the practice. After the practice, the patients had a definite feeling of well being as theyobserved a marked impotent in headache, narrowness, irritability and also their average mean blood pressure reduced from 130 to 107 mmhg after the intervention.

The fourth objective was to associate the posttest level of blood pressure among patients with hypertension in experimental and control group with the selected demographic variables. (Age, sex, education, occupation, dietary habits, etc)

Tables no (7,8) analysis revealed there was no significantassociation between the post test level of blood pressureand demographic variables such as age, sex, education, occupation, monthly income,family history of hypertension,bad habits and dietary habits.

In experimental and control group, the calculated chi square value showed that there was no association between demographic variables and blood pressure respectively at $p<0.05$level.

The above result was supported by **JNC (2006)**community basedcross sectional study was carried out in rural community. 924 study subjects aged 30 years andabove were selected using systematic random sampling of houses. Anthropometry, bloodglucose, and blood pressure were measured with standard instruments and

methodology forall the study subjects. Statistical tests like Chi square, Student's t test and chi square trend wereused to analyze the data where ever applicable. Prevalence of hypertension was19.04%. It was higher in females (23.4%) than males (14.4%). It was seen that prevalence ofhypertension increased with age. Prevalence of Pre hypertension was high (18.8%). 4.3% hadisolated systolic hypertension and 0.9% had isolated diastolic hypertension. Older age,increased body mass index and waist hip ratio were significantly higher among hypertensivecompared to normotensive. Factors like upper social class, sedentary physical activity, tobaccouse and diabetes were significantly associated with hypertension. Alcohol intake was notassociated with hypertension. The prevalence of hypertension is high and isassociated with socio-demographic factors. Hence there is need for primordial preventionefforts.

Hence, the research hypothesis (H3) stated that “there is significant association between the level of blood pressure in experimental and control group of hypertensive patients with selected demographic variables” was rejected.

From the above analysis and interpretations, the hypothesis (H1), “Mean post test level of blood pressure among patients with hypertension in experimental group was significantly lower than the mean post test level of blood pressure in control group” was accepted and the hypothesis (H3) “There was significant association between the post test level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables such as age, sex, education, occupation, dietary habits, life style practice and duration of illness” was rejected.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with summary, findings, conclusion, implications, limitations and recommendations, which creates a base for evidence based practice.

SUMMARY

Hypertension, a chronic illness was a growing condition in our society, due to lifestyle changes once it is diagnosed its control basically depends on adapting a healthy lifestyle and therapeutic compliance.

The prevalence of hypertension varied around the world, with the lowest prevalence in rural India (3.4% in men and 6.8% in women) **(Kearney PM 2004).** Tamil Nadu has among the highest crude mortality rates due to cardiovascular diseases in India, with approximately 360-430 deaths per 100,000 people per year, an approximate 36% prevalence rate. Hypertension was a known problem in Tamil Nadu**. (Josh Yudkin 2011)**

Hypertension was a medical condition in which constricted arterial blood vessel increase the resistance to blood flows causing the blood to exert excessive pressure against vessel walls the heart must work harder to pump blood through the narrowed arteries if the condition persists, it is damage for the heart and blood vessels, increasing the risk for stroke, heart attack and kidney failure often it causes no symptom until it reaches a life threatening stage, if we strive for better hearts for our

people, the holistic management of hypertension need to be reached as well as practiced **(Wasier 2003).**

A recent research showed that savasana effectively lowers high blood pressure. More recently, savasana has actually been proven to be a legitimate medical practice that aids in the healing of bronchial asthma, COPD, diabetes mellitus. Savasana has also been proven to reduce blood pressure and stress.

The study was undertaken to assess the effectiveness of savasana on reduction of blood pressureamong patients with hypertension in selected villages at Virudhunagardistrict.

The Objectives of the study were:

- To assess the pretest and posttest level of blood pressure among patients with hypertension in experimental and control group.
- To find out the effectiveness of savasanaon blood pressure among patients with hypertension in experimental group.
- To compare the pre and posttest level of blood pressure among patients with hypertension in experimental group.
- To associate the posttest level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables of the experimental and control group such as age, Sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

All Hypotheses were tested at 0.05 level of significance:

H1: The mean posttest level of blood pressure among patients with hypertension in experimental group was significantly lower than the mean posttest level of blood pressure in control group.

H2: The mean posttest level of blood pressure among patients with hypertension in experimental group was significantly lower than their mean pretest level of blood pressure.

H3: There was significant association between the posttest level of blood pressure among patients with hypertension in experimental and control group with their selected demographic variables such as age, sex, education, occupation, monthly income, family history of hypertension, bad habits and dietary habits.

The assumptions of the study were:

- Sample above 41 yrs are prone to get hypertension.
- Savasana may reduce blood pressure.
- Savasanamay reduce physical and emotional tension and produce whole body relaxation.
- Savasana has no harm.

The review of literature collected for the study provided a strong basis for the study. It provided the basis for creating conceptual frame work and formation of tool. It was categorized under two headings.

Section A: Studies related toprevalence and risk factors of hypertension.

Section B: Studies related to the effects of savasana on hypertension.

The conceptual frame work of this study was based on Daniel.L.Stuffle beams context, input, process and product evaluation modeland it provided a complete frame work for achieving the central purpose of the study. The research methodology adopted for the study was quasi experimental pre test and post test control group design.

The Study was conducted in Desigapuram and Zameenkollankondan village. The total population of the village were 3256 and 7218 .The Sample size for the study was 60, 30 persons were in experimental group another 30 persons were in control group. The samples were selected based on the inclusive criteria by using purposive sampling technique.

Pilot study was conducted at kizhavikulamvillage in Virudhunagar and the findings revealed that the tool was feasible, reliable and practicable to proceed with the main study.

The content validity of the tool was established by four experts from the medical surgical nursing department, one yogatherapist and one medical expert.

The main study was conducted indesigapuram and zameenkollankondan village at Virudhunagar. The total sample size was sixty samples who fulfilled the inclusive criteria were allotted to experimental group (n = 30) and in control group (n=30) by purposive sampling technique. The collected data was analyzed and interpreted based on the objectives using descriptive and inferential statistics.

There was no association between the level of blood pressure and age, sex, education, occupation, monthly income, family history of hypertension, bad

habitsand dietary habits in the experimental group. Obtained chi square value was significant at 0.05 levels.

CONCLUSION

Thisstudy was assessed the effectiveness of savasana on reduction of blood pressure among patients with hypertension. The study findings revealed that there was a significant association on the level of blood pressure after administration of savasana in the experimental group. On the basis of the study, the researcher concluded that administration of savasana has a significant effect on blood pressure. Savasana is an effective, easy to apply and potentially risk free intervention.

IMPLICATION

Investigator has derived from the study the following implications that are of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

NURSINGPRACTICE

- The nurses have a vital role in providing safe andeffective nursing care to enhance blood pressure control among patients with hypertension.
- This can be facilitated by motivating the nurses to have an in depth knowledge in physiological considerations in blood pressure control.
- Develop skill in providing efficient nursing care for controlling blood pressure and teach the samples about the effectiveness of savasana for controlling blood pressure.
- Nurses need to practice evidence based approach while giving care to the hypertensive patients.

NURSINGEDUCATION

Before nurses enter into for their practice, they need to have strong foundation in terms of education. Nurse educator not only have a role to educate the student but also to educate the staff nurses in order to prepare them and update their knowledge, to enhance the application of theory in to practice. The education in the clinical area should be provided in the form of:

1. Incorporate savasana in the curriculum of nursing with clinical experience.
2. To motivate students to follow the savasana in control of hypertension.
3. Update the knowledge of staff nurse with inservice education programs emphasizing various measures in reduction of blood pressure control level.
4. Make use of available studies related to hypertension and its management.

NURSING ADMINISTRATION

1. Conduct inservice education programs and continuing education programs for effective management for hypertensive patient.
2. Collaborate with governing bodies for the formulation of standard policies and protocols to emphasize nursing care for hypertensive client.
3. Provide more opportunities for nurses to attend training programs in savasanaon hypertension and its control.
    - Arrange and conduct workshops, conferences, seminars on back massage therapy on blood pressure control.
    - Provide opportunities for nurses to attend training programs on savasana on hypertension and its control.

NURSING RESEARCH

1. Nurse researcher can disseminate the findings of the studies through conference, seminar and publishing in professional journals to the Medical Surgical staff.
2. Nurse researcher can encourage toconduct further researches related to savasanaprior to venipuncture.
3. The findings of the research study would help in building and strengthening the body of knowledge.
4. As a nurse researcher, promote more research on effective measures in control of blood pressure.
5. Evidence based nursing practice must take higher profile in order to increase the knowledge about savasana on hypertension and its control.

LIMITATIONS

During the period of study the limitations faced by the investigator were as follows,

1. Only limited literatures and studies were obtained from the Indian context.
2. Due to time constraints, the investigator was unable to take larger samples for the study.

RECOMMENDATIONS

Based on the findings of the present study the following recommendations are made:

1. The similar study can be conducted with large samples for better generalisation.

2. The study can be conducted to assess the knowledge and practice of nurses with regard to savasana for control of blood pressure in patients with hypertension.
3. A comparative study can be conducted by using savasana versus back massage on reduction of blood pressure among hypertensive patients.
4. The similar study can be conducted in the hospital setting.
5. The same study can be repeated by using the true experimental design.

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APPENDIX - A

SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377.
E - Mail : srikmcon@yahoo.com Web : srikmaiducollegeofnursing.org

To,

The Medical Officer,
Primary Health Center,
Zaminkollankondan,
Viruthunagar (Dist)

Mrs.B.Gomathi is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of the M.Sc (N) degree, she needs to conduct research project.

Her chosen research project is as follows **"A study to assess effectiveness of Savasana on reduction of blood pressure among patients with hypertension at selected villages in Virudhunagar District".**

She will abide by rules and regulation of the village home and adhere to the policies during her period of data collection from 01.08.2013 to 31.08.2013. Permission may kindly be granted to her for conduction of the study at your esteemed Center.

Further details of the proposal project will be furnished by the students personally, confidentiality will be ensured in the research project.

Thanking you

Yours faithfully

30/7/13

BLOCK MEDICAL OFFICER
GOVT. PRIMARY HEALTH CENTRE
ZAMIN KOLLAN KONDAN - 626 142
D.C. CODE: PH348

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753. Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.,

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY

To

The Medical Officer,
Primary Health Centre,
Zameenkollankondan, Virudhunagardistrict.

Mrs. Gomathi B. is a bonafide student of our college studying in M.sc (N) programme. As a partial fulfillment of the university requirement for the award of the M.sc(N) degree, she needs to conduct research project.

Her chosen research project is as follows**"A study to assess the effectiveness of savasanaon reduction of blood pressure among patients with hypertension inselected villages at Virudhunagar".**

She will abide by the rules and regulations of the village home and adhere to the policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your village.The plan for conducting research study is from 1.8.2013 to 31.8.2013.

Further details of the proposal project will be furnished by the student personally, confidentiality will be ensured in the research project.

Thanking you

Yours faithfully,

APPENDIX- B

LETTER SEEKING EXPERTS OPINIONFOR CONTENT VALIDITY

From:

Mrs. Gomathi.B,
M.Sc Nursing,IIYear,
Sri.K.Ramachandran Naidu College of Nursing,
Sankarankovil.

To:

Subject: Seeking validation of tool and content validity

RespectedSir/ Madam,

I am IIyear of M.sc Nursing student studying at Sri K.Ramachandran Naidu college of Nursing, Sankarankovil, Tamil NaduDr.M.G.R Medical University, working on dissertation titled, "**A STUDY TO ASSESS THE EFFECTIVENESS OF SAVASANA ON REDUCTION OF BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN SELECTEDVILLAGES, VIRUDHUNAGAR."**The dissertation is to be submitted to the Tamil NaduDr.M.G.R Medical University, as a partial fulfillment for the requirement of M.sc nursing degree. Hence I request you to kindly evaluate the tool items and give your valuable opinion and suggestions for improvement of this tool. I would be highly obliged and thankful to hear from you.

Thanking you in anticipation.

Yours sincerely,

(B.Gomathi)

Enclosures:
Statement of the problem
Research tool
Scoring key

APPENDIX – C

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERT

1. **Dr.M.Pari,MD., (GERI MED);**
   Tenkasi road,
   Rajapalayam,
   Virudhunagar district – 627 001.

NURSING EXPERTS

1. **Mrs. Jerilinepriya,**
   Principal,
   Annammalcollege of nursing,
   Kuzhithurai,Kanyakumari district.

2. **Mrs. Jaya Thangaselvi,**
   Professor,
   C.S.I. JeyarajAnnapakiumcollege of nursing,
   Passumalai,
   Madurai -4.

3. **Mrs. Sharmila rani,**
   Professor in medical surgical nursing,
   Christian college of nursing,
   Neyyor,
   Kanyakumaridist-629 802

4. **Mrs. Tamil selvi,**
   Reader,
   Bishopscollege of Nursing,
   Dharapuram,
   Erode dist.

APPENDIX- D

Arise !!! Awake !!!

TAMILNADU SWAMY VIVEKANANDHA YOGA & SKATING TRUST

RG.No. 162/99

Visit: www.ts vivekanandhaystrust.org
email: yoga.skating@gmailcom

"BHARATHA SELVAN"
Founder : **S. Suresh kumar**

Cell : 98421 99183

Shanmugapriya illam, 6/A, Saramariamman Kovil Street,
Market Road, Kovilpatti - 628 501. Tuticorin.Dist. Tamil Nadu
(Branchs allover Tamilnadu)

Date : 22/7/2013

CERTIFICATE FOR SAVASANA TRAINING

TO WHOM SOEVER IT MAY CONCERN

This is to certify that Mrs. **B.Gomathi**, M.Sc. Nursing II year student of Sri.K.Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli (Dist) has undergone Savasana Training for her project titled as **"A study to assess the effectiveness of savasana on reduction of blood pressure among hypertensive patients in Zameenkollankondan at Virudhunagar District."**

Signature

S. சுரேஷ்குமார்
திருமண தலைவர்
சுவாமி விவேகானந்தா யோகா &
விளையாட்டு மற்றும்
தலைமையகம்: கோவில்பட்டி.
Cell : 98421 99183

APPENDIX – E

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mrs. B. Gomathi, II year M. Sc Nursing student of Sri. K. Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli District, has done a dissertation study on "**EFFECTIVENESS OF SAVASANA ON REDUCTION OF BLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN SELECTED VILLAGES, VIRUDHUNAGAR DISTRICT.**" April 2014, this study was edited for English language appropriateness.

Signature 5/12/2013

A. Dalmi Sony

B.T Asst in English,

A.M.C. Govt, Hr, Sec, School

Kariyalamuthanallur-

626753.

APPENDIX –F

INFORMED CONSENT

Good Morning,

I, **B.Gomathi,**M.sc Nursing, II Year student of Sri.K.Ramachandran Naidu College of Nursing, conducting a study **"TO ASSESS THE EFFECTIVENESS OF SAVASANA ON REDUCTION OFBLOOD PRESSURE AMONG PATIENTS WITH HYPERTENSION IN SELECTED VILLAGES AT VIRUDHUNAGAR."**a partial fulfillment of the requirement for the degree of M.Sc Nursing under The Tamil Nadu Dr. M.G.R Medical University. The hypertensive patients will be given twenty minutes savasana one timeperdayfor one week. Blood pressurewill be assessed by using sphygmomanometer and stethoscopeafter the intervention.

I assure you that information obtained will be kept confidential. So, I request you to kindly co operate with me and participate in this study by giving your frank and voluntary consent.

Thank you.

APPENDIX – G

DESCRIPTION OF THE TOOL

Section-A

It consists of structured interview schedule. It has questions related to the demographic data of the patients.

Demographic variables

1. Age

a) 41-50 years

b) 51-60 years

c) 61-70 years

2. Sex

a) Male

b) Female

3. Education

a) No formal education

b) Primary education

c) High school education

d) Higher secondary education

e) Under graduate education

d) Post Graduate education

4. Occupation

a) Business

b) Coolie

c) Private employee

d) Government employee

e) Unemployed

5. Monthly income

a) Below Rs.3000

b) Between Rs.3001-5000

c) Between Rs.5001-10,000

d) Above Rs.10, 001

6. Family history of hypertension

a) Yes

b) No

7. Bad habits

a) Yes

b) No

8. Dietary habits

a) Vegetarian

b) Non-vegetarian

Section-B

Assessing the level of blood pressure by using sphygmomanometerand stethoscope.

The investigator assessed the level of blood pressure by using stethoscope andsphygmomanometer. If the instrument shows 120/80mmHg or below the score is zero, between 121-139/81-89mmHg the score is one, 140-159/90-99mmHg the score is two and 160/100 mmHg or above the score is three based on the classification of national institutes of health.

Scoring key

Score	Interpretation
0	Normal
1	Pre hypertension
2	Stage I hypertension
3	Stage II hypertension

APPENDIX - H

STEPS OF INTERVENTION

STEPS

- Explain the procedure to the patient, taught the importance of savasana and its effect on hypertension for one minute.
- Savasana includes six main steps such as lying on back with arms and legs at side, inhaling and tensing, exhaling and relaxing, slowly coming back, bringing knees to chest and rolling to side to get upright position.

1. **Lie on back with arms and legs at side.**Lie on back andput arms and legs at 45 degree angle with palms facing up for one minute. Fingers curling naturally. Eyes should be closed as well.

2. Inhale deeply, hold it and tense entire body. Clench jaw, purse lips, flex leg and arm muscles, tighten buttocks, curl toes, tighten abdomen, wrinkle forehead, tense ears, blow air into cheeks and clench fists for 2 minutes.

3. After tensing the body, exhale and relax all muscles at once. Now start relaxing the body parts from head to toe one by one that is toes, soles, ankles, calf muscles, knee joints, thighs, waist, stomach, chest, fingers, palms, wrist, elbows, shoulders, neck,chin, cheeks, mouth, nose, eyes, ears,forehead, finally top of the head for 6 minutes. Imagine sending into floor and begin to observe movement of

breath. Breathe normally for 5 minutes. Keep the mind blank for 2 minutes.

4. Slowly start to come back by wiggling fingers and toes while still keeping eyes closed for one minute.

5. Bring knees to chest and wrap arms around them for one minute.

6. Keeping knees against chest, roll onto right side and slowly push to an upright position using right elbow for one minute.

- Blood pressure was checked by using sphygmomanometer and stethoscope,who fulfilled the inclusive criteria and administered 20 minutes savasana, one timeper day for one week.
- The post assessment was done after 7 days for the both experimental and control group.